POOR LEGIBILITY

PORTIONS OF THIS DOCUMENT MAY BE UNREADABLE, DUE TO THE QUALITY OF THE ORIGINAL

THE South Mississipped Sun Gent Pour Filory 11/7/19

Reichhold Chemicals in Gulfport

Seaway plants are dealing with wastes problem

By BOB BISHOP

Reichhold Chemicals of Guifport is attempting to traffipOff its wastes to a disposal site in Texas after lealing drums posed pollution problems at the plant's chemical dump on the Industrial Seaway.

The plant manufactures hydrocarbon resins used in the production of verious with sixes. Reichhold initially buried drams containing waste materials, but they began leaking into Bayou Bernard, according to the state's Bureau of Poliution Control.

"These are not extramely toxic materials, but they are pullitants and if they did get into the water they would cause a pollution problem," bureau Chief Law Enforcement Officer John Harper said Thursday.

Mesowhile, the bureau has ordered another seaway plant, Plastias Inc., treorres t smillar problems caused by leakage from some of the 5,000 drums of waste materials at its seaway storage after.

Plastifies manufactures cutting and inhibesting oils that are not hazardous in iterials, a makes man said, Plastifies nascomplied with them denty. The Gulfport Reichhold plant disposes of brominated phenols, Harper said, noting they "are not extremely toxic materials." Drums containing the chemical wastes are no longer buried and are "pretty secure now" in a building at the plant, he added.

Reichhold is looking into a disposal site in Texas, according to Harper, who said he assumed that's where the wastes will be shipped. Mississippi does not have any landfills approved for such materials, although two applications are pending.

The bureau asked the company to build a dike to prevent leakage, construction that Reichhold said has been delayed because of Hurricane Frederic.

Harper said bureau representatives observed some leakage into the bayon from Reichold's dump that "was not a large amount that did any kind of damage, but it was enough to be evident, just enough to show we're about to have a surfacts problem."

Reichhald's thums had not deteriorated to the point where they could had be dug up, Harper sold. But if the leakage problem had not been contained, "mure [wastos]

could have gone in [BayouBernard] and caused some damage."

Reichhold officials had so comment on the problem. Corporate Vice President and General Manager O.U. Thomas at the Guiffort plant said he has been instructed to refer all inquiries to the company's legal division in White Plains, N.Y.

"I don't mir'd telling you we're not deing anything "wrong," Thomas said. Reichhold's legal division did not return telephone calls.

The company's Guilfport facility manufactures 150,000 pounds of hydrocarbon resins daily, a raw material used in the production of various adhesives.

Harper said the company previously was ordered to correct odor problems resulting from its operations after area residents complained on a daily basis. He said modifications to some equipment had to be made

The Reichhall life is licited in a list of 3,353 chemical dumping grounds that a congressional survey has found may be harardens to human and environmental health. The survey was unde by the U.S. House of

Representatives commerce auteammittee.

The special team has not investigated either dump site, yet, Division of Solid Waste Management and Vector Control Director Jack McMillan Said."
"We haven't been down there yet," McMillan said, adding that a visit is scheduled be fore the end of

After the subcommittee's report, the state Board of

Health ordered an investigation to locate and determine

the potential hazards posed by 30 chemical waste sites

in Mississippi, including Reichhold and the Pascagoula

landfill.

"We haven't been down there yet," McMillan said, adding that a visit is scheduled be fore the end of November. "I have no idea" of the potential danger, he continued. "We won't know until we get down there and take a look at it and talk to the company."

McMillan said his department has regularly inspected the Pascapoula Isnatill and is knowledgeable of what has been damped there. It was added to the bat of the mical waste sites to be inspected because a Jackson County Industry reported that its wastes were being dumped there.

The health director said he did not know a high company is involved.

· Ignod by Ha) er-lesh is is IDENTIFICATION AND PRELIMINARY ASSESSMENT YOTh: This form is completed for room potential insertions waste site to help set provides for site inspection. The information armitted on this form is based on available records and may be updated on subsequent forms as a result of additional inquiries NOTh: This form is completed for me GUNTEAL HISTRUCTIONS: Complete Sections I and III through X as completely as possible before Section II (Preliminary Assessment). File this form in the Regional Hazardous Waste Log File and submit a copy to: U.S. Environmental Protection Agency; Site Tracking System; Hazardous Waste Enforcement Task Force (EN-335), 401 M St., SW; Washington, DC 20460. 1. SITE IDENTIFICATION A. STEE NAME B. STREET;(or other identifier) Reichhold Chemical Landfill Industrial Park - Reichhold Road C. CITY E. ZIP CODE . F. COUNTY NAME Gulfport MS 39501 Harrison. G. OWNER/OPERATOR (II KNOWN) 1. NAME 2. TELEPHONE NUMBER 601-982-6317 Reichhold Chemical Company H. TYPE OF OWNERSHIP 1. FEDERAL 12. STATE 3. COUNTY 4 MUNICIPAL X 5. PRIVATE I. SITE DESCRIPTION Open dump on property surrounded by a dike. Near open fields and office buildings. J. HOW IDENTIFIED (I.e., citizen's conglaints, OSHA citations, etc.) K. DATE IDENTIFIED (mo., day, & yr.) The Eckhardt Report to Congress 11 - 2 - 79L. PRINCIPAL STATE CONTACT *- NAME Mississippi State Board of Health 2. TELEPHONE NUMBER Division of Solid Waste Management 601-982-6317 ILIPRELIMINARY ASSESSMENT (complete this section last) A. APPARENT SEFICUSNESS OF PROBLEM □1. нісн X2. MEDIUM 3. LOW 4 NONE 5. UNKNOWN B. RECOMMENDATION 1. NO ACTION REEDED (no hazerd) 2. IMMEDIATE SITE INSPECTION NEEDED TENTATIVELY SCHEDULED FOR: X 3. SITE INSPECTION MEEDED (Sampling) . TENTATIVELY SCHEDULED FOR: b. WILL BE PERFORMED BY: 5. WILL BE PERFORMED LY: 4. SITE INSFECTION NEEDED (low priority) STATE/EPA C. PREPARER INFORMATION I. NAME 2. TELEPHONE NUMBER 3. DAIE (mo., day, & yr. Sara Elizabeth Lowe 601-982-6317 11-28-79 III. SITE INFORMATION A. SITE STATUS 2. INACTIVE (Those alles that include such incidents like "midnight dumping" when wastes.).

[Those sites that include such incidents like "midnight dumping" when no regular or continuing use of the site for waste disposal has occurred. 1. ACTIVE (There Industrial or muricipal cites which are being used for waste trestment, storage, or disposal on a continuing Losis, even il infrecuculty.) B. IS GEFERATOR ON SITE! X 2. YES (apacify generator's four-digit SIC Code): 2821 ☐ 1. NO D. IF APPARENT SERIOUSNESS OF SITE IS HIGH, SPECIFY COORDINATES C. AREA OF SITE (In cares) 1. LATITUDE (dog.-min.-.ec.) 2. LONGITUDE (deg.-min.-sec.) 10 acres E. ARE THERE CUILDINGS ON THE SITE! 2. YES (ejecily): X 1. HO 72070-2 (10-79) Continue On Rev.

L'OTENTIAL MAXARDOUS WASTE SITE

SITE NUMBER (10 be #0

Martin M		IV. CHARACTERIZATION OF SITE ACTIVITY										
A. THAMPORTER B. 170FER C. THE D. DEPOSER	704			tivity by marking 'X' in the appropriate boxes.								
Suppose Supp	Xi	'A. TRANSPORT	ER	X B	. 57	TOPER	×1	C. THE ER		.X. D.	D. DISPOSER	
S. RANCE S. DANNAS S. TANKA SOVE CROUND S. TANKA SOVE CROUND S. PUPELINE S. TANKA SOVE CROUND S. PUPELINE S. TANKA SOVE CROUND S. CREATMENT FRETTMENT S. MIDDIGATY DUMPING S. CREATMENT FRETTMENT S. MIDIGATY DUMPING S. CREATMENT FRETTMENT S. MIDIGATY DUMPING S. CREATMENT FRETTMENT S. MIDIGATY DUMPING S. CREATMENT FRETTMENT S. CREATMENT		1. RAIL	·	1. PILE			<u> </u>	. FILTRATION		1. LANDFIL	1. LANDFILL	
THURK S. PIPELINE S. TANK. SELOW GROUND S. CHEMPAYS, THE STWEAT S. MIDMONT DUMPINS S. CHEMPAYS	 	<u> </u>		2. SURFA	CE	INPOUNDMENT]	2. INCINERATION		2. LANDFAR	M	
S. FIRELINE S. TANK, DELON GROUND S. CREM, PRIVE, TREATMENT S. MIGHIGHT DUMPING S. OTHER (precity) S.				 			-	VOLUME REDUCTIO	N	X 3. OPEN DU	3. OPEN DUMP	
S. OTHER (specify)				4. TANK.	ABC	VE GROUND	4	. RECYCLING/RECOV	ER	Y 4. SURFACE	IM	POUNDMENT ,
E. SPECIFY DETAILS OF SITE ACTIVITIES AS NEEDED Dispose of off-grade hyrdocarbon resins. Dispose of resin used in Sampling process, dispose of empty drums, wood trish, products from filtration—distormaceous earth filters, sludge removed from aeration lagoons, scimmings from the top of the lagoons, scrap metal. V. WASTE RELATED INFORMATION A. MASTE TYPE V. WASTE RELATED INFORMATION A. WASTE CHARACTERISTICS I. UNKNOWN D. LIQUID D. S. SOLID A. SLUDGE S. GAS WASTE CHARACTERISTICS I. UNKNOWN D. CORROSIVE S. IGNITABLE ARADIOACTIVE S'RIGHLY VOLATILE IG. OTHER (*precity)* C. WASTE CATECORIES 1. AN FECOMES AVAILABLE Specify Hems with as manifests, inventories, etc. below. No records available according to the company. 2. Estimate the smount(specify unit of measure) of waste by category; make 'X' to indicate which wastes are present. AMOUNT							_ :	S. CHEM./PHYS. TREA	TM	ENT 5. MIDNIGHT	י סי	JMPING
E. SPECHY DETAILS OF SITE ACTIVITIES AS NEEDED Dispose of off-grade hyrdocarbon resins. Dispose of resin used in sampling process, dispose of empty drums, wood trash, products from filtration—distonanceous earth filters, sludge removed from aeration lagoons, scimmings from the top of the lagoons, sprap metal. A. WASTE TYPE 1 UNKNOWN 2 LIQUID	$\vdash \vdash$	6. OTHER (specily):	٠.	6. OTHER	(sp	ecily):	-+					
E. SPECIFY DETAILS OF SITE ACTIVITIES AS MEEDED Distors of off-grade hydrocarbon resins. Dispose of resin used in sampling process, dispose of empty drums, wood trash, products from filtration—diatomaceous earth filters, sludge removed from aeration lagoons, scimmings from the top of the lagoons, sprap metal. A. WASTETYPE V. WASTE RELATED INFORMATION A. WASTETYPE I UNKNOWN [2] LIQUID [2] S. DOLID [4] S. DOLID [5] GAS M. WASTE CHARACTERISTICS II. UNKNOWN [2] LIQUID [2] S. DOLID [4] S. DOLID [5] HIGHLY VOLATILE [6] TOXIC [7] REACTIVE [8] HIRRY [7] FLAMMABLE DOSSIBLE: See attached news afticle. C. WASTE CATEGORIES I. OTHER (*precity)* C. WASTE CATEGORIES 1. AND TRECOVER See available; Specify Hems such as monifests, involution, etc. below. NO TRECOVERS available; Specify Hems such as monifests, involution, etc. below. NO TRECOVERS available; Specify Hems such as monifests, involution, etc. below. NO TRECOVERS available; Specify Hems such as monifests, involution, etc. below. NO TRECOVERS available; Specify Hems such as monifests, involution, etc. below. NO TRECOVERS available; Specify Hems such as monifests, involution, etc. below. NO TRECOVERS available; Specify Hems such as monifests, involution, etc. below. NO TRECOVERS available; Specify Hems such as monifests, involution, etc. below. NO TRECOVERS available; Specify Hems such as monifests, involution, etc. below. NO TRECOVERS available; Specify Hems such as monifests, involution, etc. below. NO TRECOVERS available; Specify Hems such as monifests, involution, etc. below. NO TRECOVERS available; Specify available; See attached news after company. 2. Estimate the amonifest process. A MOUNT AMOUNT AMOUN						<u> </u>	_ :	7. WASTE OIL REPROC	ES	SING 7. UNDERGE	200	ND INJECTION
E. SPECIFY DETAILS OF SITE ACTIVITIES AS NEEDED DISTOSS OF Off-grade hyrdocarbon resins. Dispose of resin used in sampling process, dispose of empty drums, wood trash, products from filtration distomaceous earth filters, sludge removed from acration lagoons, scimmings from the top of the lagoons, scrap metal. A. KASTETYFE 1 UNKNOWN 22 LIQUID 33. SOLID 4. SLUGGE 5. GAS			•	ł		-			4 Y	8. OTHER (1	pec	ily):
Dispose of off-grade hyrdocarbon resins. Dispose of resin used in sampling process, dispose of empty drums, wood trash, products from filtration - diatomaceous earth filters, sludge removed from aeration lagoons, scimmings from the top of the lagoons, scrap metal. Wasters V. Wastereland	-	-				-	'لــ	S. OTHER (Specify):				•
Dispose of off-grade hyrdocarbon resins. Dispose of resin used in sampling process, dispose of empty drums, wood trash, products from filtration - diatomaceous earth filters, sludge removed from aeration lagoons, scimmings from the top of the lagoons, scrap metal. Wasters V. Wastereland	E.	F. SPECIEV DETAILS OF SITE ACTIVITIES AS NEEDED										
A. WASTE TYPE 1 UNKNOWN		Dispose of off-grade hyrdocarbon resins. Dispose of resin used in sampling process, dispose of empty drums, wood trash, products from filtration - diatomaceous earth filters, sludge removed from aeration lagoons,										
1 UNKNOWN 2. LIQUID 3. SOLID 4. SLUDGE 5. GAS		WASTE TYPE				J. WASTE RELAT	ΕD	INFORMATION				
E. WASTE CHARACTERISTICS 1. UNKNOWN 2. CORROSIVE 3. IGNITABLE 4. RADIOACTIVE 5. Highly volatile			_	· .				į				<u>.</u>
1. UNKNOWN 2. CORROSIVE 3. IGNITABLE 4 RADIOACTIVE 5 HIGHLY VOLATILE X 6. TOXIC 7 REACTIVE X 8. INERT X 9 FLAMMABLE DOSSIBLE: See attached news afficie.				X]3.	so	LID4. S	LU	DGE5. G	AS	•	<u>·</u>	
Total	1 _		_	osive 🗀3.	IGI	NITARIF MAR	7 A C	NOACTIVE [75 H	GHI	LY VOLATH F		:3
	1 =		_								ch	ed news
C. WASTE CATEGORIES 1. Air records of wastes available? Specify items such as manifests, inventories, etc. below. No. records available according to the company. 2. Estimate the amount (specify unit of measure) of waste by category; mark 'X' to indicate which wastes are present. ***. SULDGE	"			GIB.								
C. WASTE CATEGORIES 1. Are records of wastes available? Specify items such as manifests, inventories, etc. below. No records available according to the company. 2. Estimate the amount(specify unit of measure) of waste by category; mark 'X' to indicate which wastes are present. a. SLUDGE b. OIL c. SOLVENTS d. CHEMICALS e. SOLIDS f. OTHER AMOUNT AMOUNT ONLY O	Г	10. OTHER (specify	· r):									1 1 1
No records available according to the company. 2. Estimate the amount (specify unit of measure) of waste by category; mark 'X' to indicate which wastes are present. 2. SLUDGE 3. SLUDGE 4. OLE 4. CHEMICALS 5. SOLIDS 6. OTHER AMOUNT AMOUNT AMOUNT AMOUNT OUNIT OF MEASURE UNIT OF MEASU		WASTE CATEGORIE	S		_		_					
2. Estimate the amount (specify unit of measure) of waste by category; mark 'X' to indicate which wastes are present. *. SLUDGE b. OIL c. SOLVENTS d. CHEMICALS *. SOLIDS f. OTHER AMOUNT AMOUNT AMOUNT ? AMOUNT AMOUNT AMOUNT ? UNIT OF MEASURE UNIT OF ME								1				
AMOUNT AM		· · · · · · · · · · · · · · · · · · ·	 			· · · · · · · · · · · · · · · · · · ·						
AMOUNT AMOUNT AMOUNT AMOUNT ? AMOUNT ? UNIT OF MEASURE X' (1) PAINT. X' (1) PAINT. X' (1) HALOGENATED X' (1) ACIDS X' (1) FLYASH X' (1) LABOHATORY PIRARMACEUT X' (1) ACIDS X' (1) FLYASH X' (1) LABOHATORY PIRARMACEUT X' (1) ACIDS X' (1) FLYASH X' (1) LABOHATORY PIRARMACEUT X' (1) ACIDS X' (1) FLYASH X' (1) LABOHATORY (1) PIRARMACEUT X' (1) ACIDS X' (1) FLYASH X' (1) LABOHATORY (2) HOSPITAL X' (1) ACIDS X' (1) FLYASH X' (1) LABOHATORY (2) HOSPITAL X' (1) PAINT X' (1) ACIDS X' (1) FLYASH X' (1) LABOHATORY (2) HOSPITAL X' (1) ACIDS X' (1) FLYASH X' (1) LABOHATORY (2) HOSPITAL X' (1) ACIDS X' (1) FLYASH X' (1) LABOHATORY (2) HOSPITAL X' (1) ACIDS X' (1) FLYASH X' (1) LABOHATORY (2) HOSPITAL X' (1) ACIDS X' (1) FLYASH X' (1) LABOHATORY (2) HOSPITAL X' (1) ACIDS X' (1) FLYASH X' (1) LABOHATORY (2) HOSPITAL X' (1) ACIDS X' (1) FLYASH X' (1) LABOHATORY (2) HOSPITAL X' (1) ACIDS X' (1) FLYASH X' (1) LABOHATORY (2) HOSPITAL X' (1) ACIDS X' (1) FLYASH X' (1) LABOHATORY (2) HOSPITAL X' (1) ACIDS X' (1) FLYASH X' (1) LABOHATORY (2) HOSPITAL X' (1) ACIDS X' (1) FLYASH X' (1) LABOHATORY (2) HOSPITAL X' (1) ACIDS X' (1) FLYASH X' (1) LABOHATORY (2) HOSPITAL X' (1) ACIDS X' (1) FLYASH X' (1) LABOHATORY (2) HOSPITAL X' (1) ACIDS X' (1) FLYASH X' (1) LABOHATORY (2) HOSPITAL X' (1) ACIDS X' (1) FLYASH X' (1) ACIDS X' (1) FLYASH X' (1) ACIDS X					1511		ego		ate		res	
UNIT OF MEASURE UNIT O				OIL	AM		1					
X' (1) PAINT, Y'								?	~ "	?		OUNT
PEGMENTS WASTES SOLVENTS (1) ACIDS (1) FLYASH (1) PHARMACEUT (2) METALS (2) OTHER(specily): (2) NON-HALOGNTD (3) OTHER(specily): (4) PESTICIDES (4) FERROUS (4) MUNICIPAL (5) OTHER(specily): (6) CYANIDE (6) CYANIDE (7) PHENOLS (8) PCB (10) PLOYANIDE (10) PLOYANIDE (11) OTHER(specily): (12) ASBESTOS (2) HOSPITAL (2) HOSPITAL (3) RADIOACTIVE (4) MUNICIPAL (4) MUNICIPAL (5) NON-FERROUS (5) NON-FERROUS (6) CYANIDE Waste Wood products, scrap metal, drums filters, (9) PCB (10) METALS X (11) OTHER(specily) Hydrocarbon resins	U	NIT OF MEASURE	UNIT OF	MEASURE	UΝ	IT OF MEASURE	UNIT OF MEASURE		UΝ	UNIT OF MEASURE		IT OF MEASURE
[2] METALS SLUDGES [2] OTHER (specify): [2] NON-HALOGNTD [2] PICKLING [2] ASBESTOS [2] HOSPITAL [2] POTW [3] CAUSTICS [3] MILLINGS [3] RADIOACTIVE [4] ALUMINUM [4] ALUMINUM [4] ALUMINUM [5] OTHER (specify): [5] OTHER (specify): [6] CYANIDE [5] OTHER (specify): Waste Wood products, scrap metal, drums filters, [6] PCB [5] PCB	×	(1) PAINT,	\ , \		٠x٠	(1)HALOGENATED		x' (I) A CIDE	·×·		. x.	LABORATORY
SOLVENTS LIQUORS CANSSIGN							\bot			117727838	_	" PHARMACEUT
(4) ALUMINUM SLUDGE (4) PESTICIDES (4) FERROUS (4) FERROUS (5) NON-FERROUS SMLTG. WASTES (5) OTHER(specify): (6) CYANIDE (7) PHENOLS (8) HALOGENS (9) PCB (10) METALS X (11) OTHER(specify) Hydrocarbon resins			[](2)01	HER(specify):			<u> </u>			(2) ASBESTOS		(2) HOSPITAL
(5) OTHER(specify): (5) OTHER(specify): (6) CYANIDE (7) PHENOLS (8) HALOGENS (9) PCB (10) METALS X (11) OTHER(specify) Hydrocarbon resins		(3) POTW		*		(3) OTHER(specify)	•	(3) CAUSTICS			<u> </u>	(3) RADIDACTIVE
(6) CYANIDE SMLTG. WASTES Waste Wood Waste Wood Products, scrap metal, drums filters, Matter Matter								(4) PESTICIDES		(4) FERROUS SMLTG. WASTES		(4) MUNICIPAL
(5) CYANIDE Waste wood products, scrap metal, drums filters, (5) PCB (10) METALS X (11) OTHER (*pocify) Hydrocarbon resins	-	(5) OTHER(specity):						(5) DYES/INKS			4	(5) OTHER(specif
(B) HALOGENS (B) HALOGENS (D) PCB (D) METALS X (11) OTHER (*pocify) Hydrocarbon resins				;		·		(6) CYANIDE	Ī	waste wood		
(B) HALOGENS filters, (D) PCB (IO) METALS X (III) OTHER (Apocily) Hydrocarbon resins							(7) PHENOLS		•	1	.p	
X MINOTHER (Apocity) Hydrocarbon resins			Ì	(8) HALOGENS		-						
X MINOTHER (Apocity) Hydrocarbon resins				ł	(O) PC B	1						
X Hydrocarbon resins									-			
Hydrocarbon resins						•						
resins	1		1				ļ		·			
	1		1					- ,				
	L	D4 E T0020 2 (10	791			~	ل					tique On Pudo 2

WASTE RELATED INFORMATION (continued)

3. LIST SUBSTANCES OF GREATEST CO CERN WHICH MAY BE ON THE SITE (place in d

ending order of hazard).

Hydrocarbon resins Diatomaceous earth filters

A. ADDITIONAL COMMENTS OR NARRATIVE DESCRIPTION OF SITUATION KNOWN OR REPORTED TO EXIST AT THE SITE.

Bureau of Ms. Pollution Control requested that diking was needed

around the landfill to prevent surface water run-off. This has been done, but contamination of surface water is still occurring.

		VI. HAZ	ZARD DESCRIPTION	
- A. TYPE OF HAZARD	B. POTEN- TIAL HAZARD (mark 'X')	C. ALLEGED INCIDENT (mark 'X')	D. DATE OF INCIDENT (mo., day, yr.)	E. REMARKS
I. NO HAZARD		· .		
2. HUMAN HEALTH				
NON-WORKER INJURY/EXPOSURE				
4. WORKER INJURY				
6- OF WATER SUPPLY	X			
6. CONTAMINATION OF FOOD CHAIN				
7. CONTAMINATION OF GROUND WATER	х			
8. OF SURFACE WATER	х			
9. FLORA/FAUNA				
- 10. FISH KILL	·			
11. CONTAMINATION OF AIR				
12. NOTICEABLE ODORS				
13. CONTAMINATION OF SOIL	х	·		
14. PROPERTY DAMAGE				
15. FIRE OR EXPLOSION	х?			
16. SPILLS/LEAKING CONTAINERS/ RUNOFF/STANDING LIQUIDS				
17. SEWER, STORM 17. DRAIN PROBLEMS				
18. EROSION PROBLEMS	:			
19. INADEQUATE SECURITY				
20. INCOMPATIBLE WASTES				
21. MIDNIGHT DUMPING				
22. OTHER (specily):		4		
EPA Form T2070-2 (10-79)			PAGE 3 OF 4	Continue On Reverse

onlined From Front					
19 4 4 E	V	II. PERMIT INFOR	RMATION		· · ·
ALIMOICATE ALL APPLICABLE PERM					
-				er ;-	
		3. STATE PERMIT(s	specify):		
X 4. AIR PERMITS 5. LOC	AL PERMIT (S. RCRA TRANSPOR	RTER		<u> </u>
7 RCRA STORER B. RCR	A TREATER []	RCRA DISPOSER	 		***
10. OTHER (specify):				·	
B. IN COMPLIANCE?		•		:::	
1. YES 2. NO	<u>×</u> :	3. UNKNOWN			
4. WITH RESPECT TO (list regula	ation name & number):		<u> </u>	
	VIII. P	AST REGULATOR	Y ACTIONS		
X A. NONE B. YE	S (summarize below)				
By this agency				· -	and the second and
•				: *	
	*	•		• •	, <u>.</u>
	IX: INSPEC	TION ACTIVITY	(nast or on-going)	
		·	past of on going		
A. NONE X B. YES	(complete items 1,2	.3, & 4 below)	į	÷	
1. TYPE OF ACTIVITY	2 DATE OF PAST ACTION (mo, day, & yr.)	3 PERFORMED BY: (EPA/State)		4. DESCRIPTION	
visual inspection	11-28-79	State			
			1		. '
	X. REMI	EDIAL ACTIVITY	(past or on-going	5)	
				·	•
A. NONE B. YES	(complete items 1,	2,3, & 4 below)	-		
. 1. TYPE OF ACTIVITY	2. DATE OF PAST ACTION (mo., day, & yr.)	3.PERFORMED BY: (EPA/State)		4. DESCRIPTION	
·					•=
	<u> </u>	<u> </u>			
NOTE: Based on the information		= '	out the Prelimi	nary Assessment (Section)	(I)
information on the first	page of this for	m.			Harmon State Control
EPA Form T2070-2 (10-79)		PAGE 4 OF 4	3		

;

Authorities still don't know cause of Reichhold fire.

Orange Grove volunteer firefighters quickly extinguished a fire at Reichhold Chemical's waste dump north of Gulfport on Thursday morning, but the cause of the blaze was a mystery.

The fire engulfed one-fourth of an acre at the chemical dump site off Reichhold Road near the Industrial Seaway, according to Fire Chief Les Looney

The substance that ignited at the dump is a resin used in the manufacture of asphalt for road paving, Looney said. Firemen had the blaze under control within 10 or 15 minutes, he added.

he added.
"It's hard to say how it got started," Looney said. The fire apparently began when workers were rearranging drums "and somehow it got ignited," he noted.

Looney said authorities initially thought some workers had started a fire in a drum to keep warm, and that the fire got out of control. However, officials later discounted that report.

The chemical dump fire occurred one day after state health department officials inspected the dump or landfill as part of a statewide investigation into waste sites listed as potential hazards by a congressional committee. The Reichhold dump was the only one in Harrison County to be inspected.

After their inspection, board of health officials said they would study their reports before making any comments about their findings.

The Orange Grove Volunteer Fire
Department responded to the fire with six
men and one truck. Looney said they used
"light water," a type of foam, to bring the fire
under control.

RECEIVED

DEC 3 79

DIV. S.W.M. & V.C.

#W 05



SITE NUMBER

NOTE: The initial identification of a potential size or incident should not be interpreted as a finding of illegal activity or confirmation that an actual health or environmental threat exists. All identified sites will be assessed under the EPA's Hazardous Waste Site Enforcement and Response System to determine if a hazardous waste problem actually exists.

CITE NAME				
REICHHOLD	CHE	FMICALS	Reschield K	<i>ال</i>
6ULFPOLT		STATE	3 9.50	,/
ON SITE GEN, DISPOSAL	70-79	, IN USE , AMOUN	7 OF WASTE	
THRU 1979 15 3400 0 7	ons. c	COMPONENTS: OK 6Ah	vas, inor g + m	nation
ITEM	DATE OF DETERMIN- ATION OR COMPLE- TION	RESPONSIBLE ORGANIZATION OR INDIVIDUAL (EPA, State, Contractor, Other)	PERSON MAKING ENTRY TO LOG FORM	DATE ENTEPED ON LOG (mo,day,yr)
1. IDENTIFICATION OF POTENTIAL PROBLEM	11-1-79	ECKHARDT SUBCOMMITTEE	FERRAZZUOLO	11-19-79
2. PRELIMINARY ASSESSMENT	11-28-79	STATE - LOWE	VEATER_	5-2-80
APPARENT SERIOUSNESS OF PROBLEM	HIGH	1	NE [] UNKNOWN	<u> </u>
3. SITE INSPECTION	2-6-80	EPA - DAVIS	VERTER	5.2.80
4. EPA TENTATIVE DISPOSITION (check appropriate item(s) helow)				
a. NO ACTION NEEDED	*	Managera . Administration described described and described and described and described assets and described assets as the described as the d		and comment of con-
b. INVESTIGATIVE ACTION NEEDED			70.	
c. REMEDIAL ACTION NEEDED	15 min	Service Service Service		
[] d. ENFORCEMENT ACTION NEEDED) was to compare to a second of the compare to the	
5. EPA FINAL STRATEGY DETERMINATION (check appropriate item(a) below)	-	Interest Newholes Managery and Australia		
A. NO ACTION NEEDED			a to the state and the same	
b. REMEDIAL ACTION NEEDED		Tentage a space and the contract of the contra		
REMEDIAL ACTION NEEDED BUT,		summeric remains to the second second second	and the second s	
d. ENFORCEMENT ACTION NEEDED		19 PRINTE - STANLING P (MISSING) - ALTER ANALYSIS - ALV		
[] (1) CASE DEVELOPMENT PLAN PREPARED	A STATE OF THE STA			
[] (2) ENFORCEMENT CASE FILED OR ADMINISTRATIVE ORDER ISSUED				
6. STRATEGY COMPLETED				

EPA Form T2070-1 (10-79)

\$EP/	1
File this form i	n 1

TENTATIVE DISPOSITION

•		والمراجع والم والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع والمراج
	REGION	SITE NUMBER
	777	4440000

file this form in the regional Hazardous Waste Log File and submit a copy to: U.S. Environmental Protection Agency; Site Tracking

A OUT NAME					20460.			
		I. SITE IDENTI	FICATION				~~~~	
Reichhold C	hemic	al s	B. STREET	hhole	O Ra	1.		
c. čity Gulfport			D. STATE	55		E. ZIP CO	DE	
		II. TENTATIVE	DISPOSITION					
Indicate the recommended action	(s) and agency(ie	s) that should be i	nvolved by m	arking 'X' i	n the app	ropriate bo	xes.	
RÉ	COMMENDATION				 	ACTION		
				MARK'X'	EPA_	STATE	LOCAL	PRIVATE
A. NO ACTION NEEDED NO HAZ	ZARD					<u> </u>		
B. INVESTIGATIVE ACTION(S) NE	EDED (If yes, comp	olete Section III.)		X_{-}	<u>X</u> _	X		X
C. REMEDIAL ACTION NEEDED (I	f yes, complete Sec	tion IV.)				<u></u>		
ENFORCEMENT ACTION NEED D. be primarily managed by the EPA is anticipated.) E. RATIONALE FOR DISPOSITION	or the State and wi	in Part E whether the hat type of enforcement	e case will ent action	•	·			
site inspect	rion,7/	/30/9v						: .
F. INDICATE THE ESTIMATED DA	TE OF FINAL BIA	DOSITION	10 15 4 0405	- DEVEL 00	V=V= 51	W IS NECE	CARY IND	CATE THE
(mos, day, & yrs)	TE OF FINAL DIS	POSITION	G. IF A CASE ESTIMATE (mo., day, &	ED DATE ON				
H. PREPARER INFORMATION								
1, NAME	•		2. TELEPHO	ONE NUMBE	R	3. DA	TE (mo., da	y, & yr•)
070~ W. J	731120		257	- 53	<u>.34</u>	10	116/	80
	J III. 1	NVESTIGATIVE A	CTIVITY NE	EDED				
A IDENTIEV ADDITIONAL INFORM	MATION NEEDED							
Installation of and further obtained & a	halyze	oring water	CILS &		olys	is o	f so	be,
Installation of and further	r monit	aring water water and are water and are water and are water and are	CILS &	on.	alys	is o	f so.	rples, be
Installation of and further obtained & a	r monit r surfe nalyze	oring water	CILS &	mple	olys	S. REMARK	Q to	be,
Installation of and furthur and furthur obtained as	CTIVITY (Detailed)	Information) 3. TO BE PERFORMED BY (EPA, Con-	CILS &	mple	olys	S. REMARK	Q to	rples,
B. PROPOSED INVESTIGATIVE ACTION 1. METHOD FOR OBTAINING NEEDED ADDITIONAL INFO. a. TYPE OF SITE INSPECTION	CTIVITY (Detailed)	Information) 3. TO BE PERFORMED BY (EPA, Con-	CILS &	mple	olys	5. REMARK	Q to	be,
Installation and furthur and furthur and furthur obtained 4 and 1. METHOD FOR OBTAINING NEEDED ADDITIONAL INFO. a. TYPE OF SITE INSPECTION (1) (2) (3)	CTIVITY (Detailed)	Information) 3. TO BE PERFORMED BY (EPA, Con-	CILS &	mple	olys	5. REMARK	Q to	rples,
Installation of and further and further obtained to a state of the sta	CTIVITY (Detailed)	Information) 3. TO BE PERFORMED BY (EPA, Con-	CILS &	mple	olys	5. REMARK	Q to	rples,
Installation and furthus obtained to a confidence of a confide	CTIVITY (Detailed)	Information) 3. TO BE PERFORMED BY (EPA, Con-	CILS &	mple	olys	5. REMARK	Q to	rples,
Destained to and further obtained to an analytic to a control of the state of the s	CTIVITY (Detailed)	Information) 3. TO BE PERFORMED BY (EPA, Con-	CILS &	mple	alys	5. REMARK	Q to	rples,

d. OTHER (specify)

UNITED STATES ENVIRONMENTAL PROTECTION ASENCY ATHENS, CEORGIA 30605

DATE: - JAN 2 1989

SUBJECT: Hazardous Waste Site Investigation, Reichhold Chemical Company,

Gulfport, Mississippi

FROM: Water Surveillance Branch

TO: See Below

SUMMARY

Attached is a copy of the study plan for the investigation to be conducted at the above facility in Gulfport, Mississippi.

ACTION

For your information.

BACKGROUND

Request for investigation by Air and Hazardous Materials Division.

-William R. Davis

Attachment

Addressees:

Devine Scarbrough Dickinson Turnipseed/Newsom Hutchinson/McClanahan Finger/Adams Carter/Lair Carroll/Bennett



STUDY PLAN REICHHOLD CHEMICAL COMPANY GULFPORT, MISSISSIPPI FEBRUARY 1980

INTRODUCTION

The US-EPA, Region IV, Surveillance and Analysis Division (SAD) will conduct an investigation of the Reichhold Chemical Company landfill during the week of February 4, 1980. The study will be conducted at the request of the Region IV Hazardous Materials Division.

OBJECTIVES

The objectives of the investigation will be to (1) determine if the landfill leachates are being conveyed into surface and/or into ground-water, and (2) determine what potential hazardous chemicals are present in the leachate.

SCOPE AND TIME SCHEDULES

The study will be limited to sampling the leachate streams at the site, upstream and downstream samples from the receiving stream (including sediment) and any wells that are in the vicinity of the landfill. Additional soil samples may be collected from the site area.

All samples will be analyzed for volatile organics, extractable organics, metals, nutrients and COD.

February 4

February 5-7

February 8

Travel to Gulfport area Conduct investigation

Return samples to laboratory

FIELD STUDY PROCEDURES

Grab samples from leachate streams will be collected from representative samples from the landfill. An upstream and downstream water and sediment sample will be collected from the receiving stream by a grab technique. Any wells that are in the vicinity of the landfill will be collected after evacuating the static water column.

Water samples will be collected in standard US-EPA, Region IV, containers. Sediments will be collected with stainless steel spoons or by a stainless steel dredge. The sediment samples will be placed in glass solvent rinsed containers. All samples will be placed on ice with chain-of-custody maintained.

All analyses will be conducted by the SAD laboratory, Athens, Georgia.

INVESTIGATION PERSONNEL

William R. Davis - SAD Shane Hitchcock - SAD HAZARDOUS WASTE SITE INVESTIGATION REICHHOLD CHEMICAL COMPANY GULFPORT, MISSISSIPPI

HAZARDOUS WASTE SITE INVESTIGATION REICHHOLD CHEMICAL COMPANY GULFPORT, MISSISIPPI

INTRODUCTION

Messrs. William R. Davis and Shane Hitchcock, US-EPA, Water Surveillance Branch and Jim Hardage, Mississippi, Division of Solid Waste Management conducted an investigation of the hazardous waste site associated with the Reichhold Chemical Company plant at Gulfport, Mississippi, on February 6, 1980.

The investigation was requested by the Air & Hazardous Waste Division to determine if the site, which had been identified by the Eckhardt Subcommittee, presented a potential problem.

The investigation team met with Mr. O. U. Thomas, Plant Manager, who answered the questions on the Potential Hazardous Waste Site, Site Inspection Form, which included a history of the development and use of the landfill. A company representative was provided to assist in the site investigation.

SITE LOCATION AND DESCRIPTION

The disposal site is located adjacent to and east of the chemical complex and covers an area of approximately 12 acres. Filter cake material consisting of catalytic salts and associated solvents, solid resins from the manufacturing processes, and general trash consisting of paper and wood have been placed in the landfill by Reichhold. The landfill is bordered on the south by Big Canal and by marshy areas on the north and east. The area has been diked on three sides by spoil from past dredging operations and is enclosed on the south by waste from the plant. (See Figure 1 for map of site.) Standing water has accumulated in the lower area of the site through run-off and seepage from the fill. A stand-pipe and drainline have been installed in the lower dike and water was flowing from the diked area during the investigation. (See attached photographs for a pictorial description of the site). The landfill has been graded and is covered with a mixture of waste material and sand/organic type soil, however, solid resins were scattered over the surface.

RESULTS AND DISCUSSION

Two samples were collected, RC-1, a water sample from the discharge point of the pipe draining the diked area, and RC-2, a waste sample collected from discarded filter material which was deposited on the site. All analytical data are attached to this report

The water sample (RC-1) contained a high concentration of COD (767 mg/1) which is indicative of organic contamination well above natural occurring organics associated with marshy soils. This was further substantiated by the identification of some 15 specific organic compounds and 20 unidentified compounds. The major organic compounds identified were xylene 24 µg/1, C₃ Alkylbenzene (2 isomers) 12 µg/1, trimethyl-bicyclo-heptanone 70 µg/1, trimethylcyclopentenone 140 µg/1, phenylethanone 80 µg/1, methylhydroxybenzeneacetic acid 15 µg/1, dimethylbenzenemethanol 460 µg/1, methylbenzoic acid 87 µg/1 and 20 unidentified compounds ranging from 10 to 100 µg/1. Phenol was detected at 89 µg/1. No pesticides or PCBs were detected. Metal concentrations were not abnormal for water draining from marshy areas.

The solid sample (RC-2), which was filter cake material, consists of catalytic salts. The company reported that some one-million pounds are deposited in the landfill site each year. The material has a very low solubility rate and has somvents associated with it. Analytical data show that several volatile organics including benzene 38 mg/kg, toluene 530 mg/kg and ethylbenzene 570 mg/kg were present. All of these compounds are on the NRDC list of priority pollutants. Approximately 35,000 mg/kg of unidentified hydrocarbons (volatile) were detected in the waste sample. Only 9 extractable organic compounds were detected in the waste sample. The major compounds were C₃ alkylbenzene (2 isomers) 300 mg/kg, methyl-methylethenyl ethanone 250 mg/kg, zylene (2 isomers) 3,000 mg/kg, methyl-methylethenyl cyclohexane 2500 mg/kg and C₄ akyl benzene 1700 mg/kg. High concentrations of aluminum 60,096 mg/kg and iron 1,827 mg/kg were detected in the waste.

The solvent type volatile organics associated with the waste material are not being partitioned into the water as evidenced by the analytical data. Only a trace of benzene (less than 5 μ g/1) was detected in the water phase. The high concentration of zylene (3,000 mg/kg) in the waste was detected in the water sample (24 μ g/1).

Based on the limited sampling, the water does contain a substantial number of organic compounds associated with the waste material being deposited on the landfill, but does not appear to be highly concentrated.

STUDY METHODOLOGY

The water samples were collected by the grab technique into standard US-EPA Region IV solvent rinsed quart jars with Teflon lids for extractable organics and oven-dryed vials for volatile organics (VOA). The VOA samples were collected to overflowing, without air bubbles. Teflon septums were used as liners for the lids.

Acid rinsed pint glass bottles were used for metal samples with preservatives added at the mobile laboratory.

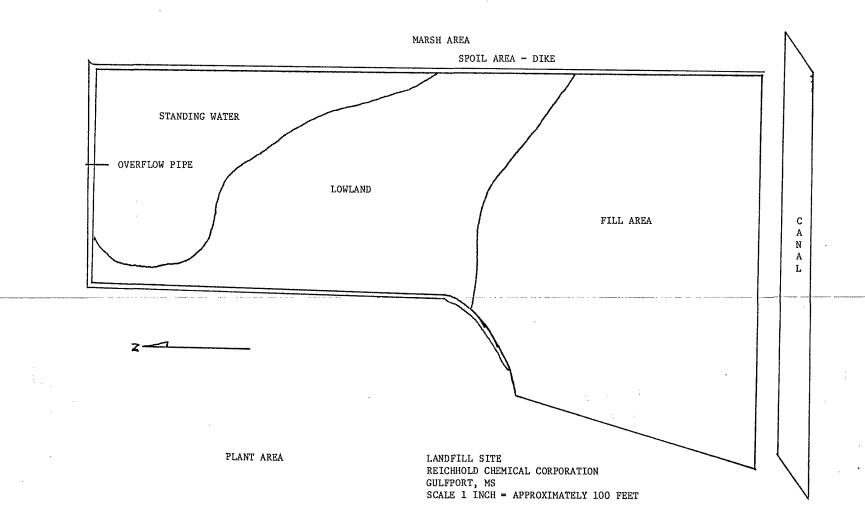
Chain-of-custody was maintained on all samples. Each container was tagged, placed on ice, maintained at 4°C, and stored in locked vehicles until returned to the laboratory in Athens, Georgia.

Analyses of samples were performed as follows:

- Extractable Organics Base/neutral and acid extraction analyzed by GC/MS.
- 2. Volatile Organics Purge and trap method analyzed by GC/MS.
- 3. Pesticides, PCBs and Chlorinated Compounds Pesticides extraction analyzed on GC/EC with two columns and in selected cases GC/MS confirmation. This method provides high sensitivity for selected halogenated organic compounds for which reference standards are available.

Solid Samples were extracted with a Polytron extraction unit.

Metals were acid digested and analyzed by Inductively Coupled Argon Plasma.



EPA, SAD, RGN. IV Athens, GA 6/79

Gulfport, Mississippi	CHEMIST E. W. Loy, J	•	• • • •
			الشيخان المالية
SAD NO.	80C 0288		
	RC-1 End of		
SOURCE & STATION	Overflow Drainage		
DOUGD & DINIZON	Pipe		
	- 14 (00 0 0 0 0 0 0		-
DATE/TIME	2/6/80 @ 1530		
Compounds on NRDC List of Priority	Concentration	Concentration	Concentration :
Pollutants	ug/L		
17. bis(chloromethyl) ether	· NA	NA NA	NA NA
61. N-nitrosodimethylamine	NA NA	NA	NA NA
25. 1,2-dichlorobenzene	100		
26. 1,3-dichlorobenzene 27. 1,4-dichlorobenzene	100		
18. bis(2-chloroethyl) ether	100	· · · · · · · · · · · · · · · · · · ·	
12. hexachloroethane	100		
42. bis(2-chloroisopropyl) ether	100		
63. N-nitrosodi-n-propylamine	400		
56. nitrobenzene	100		
52. hexachlorobutadiene	100		
8. 1,2,4-trichlorobenzene	100		
55. naphthalene	100		
43. bis(2-chloroethoxy) methane	100		
54. isophorone	400		
3. hexachlorocyclopentadiene	100		
0. 2-chloronaphthalene	1.00		
77. acenaphthylene	100		
1. acenaphthene	100	<u> </u>	
1. dimethyl phthalate	100		
35. 2,4-dinitrotoluene	100		
36. 2,6-dinftrotoluene	100		
0. 4-chlorophenyl phenyl ether	10U		
30. fluorene	100		
70. diethyl phthalate	100		
37. 1,2-diphenylhydrazine 2/	10U 10U		
62. N-nitrosodiphenylamine3/	100		
9. hexachlorobenzene 41. 4-bromophenyl phenyl ether	100		
	100		
81. phenanthrene 4/ 78. anthracene 4/	- 10U		- √ ,,
68. di-n-butyl phthalate	100		-
9. fluoranthene	100		
34. pyrene	100		
7. butyl benzyl phthalate	100		·
5." benzidine	40U		
66. bis(2-ethylhexy1) phthalate	100		
76. chrysene 5/			
72. 1,2-benzanthracene 5/	100		
28. 3,3'-dichlorobenzidine	100		
69. di-n-octyl phthalate	100		
74. 3,4-benzofluoranthene <u>6</u> /			
75. 11,12-benzofluoranthene <u>6</u> /	· - 10U		1
73. 3,4-benzopyrene	10u		
83. ·indeno (1,2,3-cd) pyrene	100		
82. 1,2,5,6-dibenzanthracene	100		
79. 1,12-benzoperylene	100	· · · · · · · · · · · · · · · · · · ·	
24. 2-chlorophenol	100U	<u> </u>	
57. 2-nitrophenol	1000		
65a. phenol (GC/MS)	1000		
34. 2,4-dimethylphenol	100U		
31. 2,4-dichlorophenol	1000		
AL. A.4.D-FFICDIOTOPDEDDI	1 10011	1	

- Not analyzed.

J - Estimated value.

K - Actual value is known to be less than value given.

L - Actual value is known to be greater than value given.

L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.
- Tentative identification.

- Tentative identification.

2,4,6-trichlorophenol

parachlorometa cresol

4,6-dinitro-o-cresol

2,4-dinitrophenol

pentachlorophenol

4-nitrophenol

and/or azobenzene.
and/or diphenylamine. 3/- and/or azobenzene. 3/- and/or diphenylaming

(OVER)

5/- Chrysene and/or 1,2-benzanthracen

6/- 3,4-benzofluoranthene and/or

11,12-benzofluoranthene.

on a late of the same and

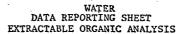
1000

1000

1008

1000

1000



EPA, SAD, RGN. IV Athens, GA 6/79

CHEMIST E. W. Loy, Jr. REC'D. 2/6/80 COMPL'D. 3/27/80

PROJECT Reichold Chemical HWS Gulfport, Mississippi 80C 0288 SAD NO. SOURCE & STATION DATE/TIME Estimated Estimated Estimated Concentration ug/L COMPOUND Concentration Concentration Xylene1/ 24J C3 Alkylbenzene (2 isomers) C₄ Alkylbenzene (2 isomers) 10K Methylpentanedione1/ 10K Methylstyrene 1/ 10K Trimethylbicycloheptanone-1/ 70J Trimethylcyclopentenone1/ 140J Phenylethanone1/ 80J Methylhydroxybenzeneacetic $Acid^{1/2}$ 15J <u>Dimethylbenzenemethanol</u>1/ 460J Methylbenzoic Acid1/ 87J Dimethylbenzoic Acid-/ 140J The chromatogram indicated the presence of a petroleum type projuct . 20 Unidentified Compounds 10J-100J

No other organic compounds detected with an estimated minimum detection limit of ... 800 ug/L.

J - Estimated value. .

K - Actual value is known to be less than value given.

L - Actual value is known to be greater than value given.

U - Material was analyzed for but not detected. The number is the Minimum Detection Limit. NA - Not analyzed.

1/_ Tentative identification.

DATA REPORTING SHEET EXTRACTABLE ORGANIC ANALYSIS

Athens, CA

PROJECT Reichold Chemical HWS CHEMIST E. W. Loy, REC'D. 2-6-80 COMPL'D. 4-3-80 Gulfport, MS

	~	·	4
SAD NO.	80C 0289		<u>T</u>
SOURCE & STATION	RC-2 From Clay at Dump site		. 5,150
DATE/TIME	2-6-80 @ 1615	1.	
Compounds on NRDC List of Priority Pollutants	Concentration mg/Kg	Concentration	Concentration
17. bis(chloromethyl) ether	NA	NA NA	NA
61. N-nitrosodimethylamine	NA 1001	NA	NA NA
25. 1,2-dichlorobenzene	100U 100U		
26. 1,3-dichlorobenzene 27. 1,4-dichlorobenzene	1000		
18. bis(2-chloroethyl) ether	1000		+
12. hexachloroethane	1000		
42. bis(2-chloroisopropy1) ether	1 00U		
63. N-nitrosodi-n-propylamine	2000	1	
56. nitrobenzene	1000	·T	T
52. hexachlorobutadiene	1000		
8. 1,2,4-trichlorobenzene 55. naphthalene	100U 100K -		
55. naphthalene 43. bis(2-chloroethoxy) methane	100K -		
54. isophorone	2000		-
53. hexachlorocyclopentadiene	1000		
20. 2-chloronaphthalene	100U		
77. acenaphthylene	100U		
1. acenaphthene	100U	T	
71. dimethyl phthalate	1000	T	T
35. 2,4-dimitrotoluene	1000	<u> </u>	
36. 2,6-dinitrotoluene 40. 4-chlorophenyl phenyl ether	100U 100U		
- 40. 4-chlorophenyl phenyl ether 80. fluorene	1000		
70. diethyl phthalate	1000		
37. 1,2-diphenylhydrazine 2/	1000		
62. N-mitrosodiphenylamine3/	100U		
9. hexachlorobenzene	1000		
41. 4-bromophenyl phenyl ether	100n		
81. phenanthrene4/	i	T	Τ
78. anthracene4/	1000		
68. di-n-buty1 phthalate 39. fluoranthene	100U		
68. di-n-butyl phthalate 39. fluoranthene 84. pyrene 67. butyl benzyl phthalate	100U 100U		
84. pyrene 67. butyl benzyl phthalate	100U 100U		
5. benzidine	200U		
5.66. bis(2-ethylhexyl) phthalate	: 100U		
76. chrysene 5/			
72. 1,2-benzanthracene 5/	1000	1	1
28. 3,3'-dichlorobenzidine	1000	T	<u>T</u>
69. di-n-octyl phthalate 74. 3,4-benzofluoranthene 6/	100U		
	- 100u		
73. 3,4-benzopyrene	1000		
73. 3,4-benzopyrene 83. indeno (1,2,3-cd) pyrene	1000		
82. 1,2,5,6-dibenzanthracene	1000		
79. 1,12-benzoperylene	1000		
24. 2-chlorophenol	1000	Ti	
57. 2-nitrophenol	1000		
65a. phenol (GC/MS)	1000		
34. 2,4-dimethylphenol 31. 2,4-dichlorophenol	1000		
31. 2,4-dichlorophenol 21. 2,4,6-trichlorophenol	. 100U		
22. parachlorometa cresol	1000		-
59. 2,4-dinitrophenol	800U		
60. 4,6-dinitro-o-cresol	100U		
75. 11,12-benzofluoranthene6/ 73. 3,4-benzopyrene 83. indeno (1,2,3-cd) pyrene 82. 1,2,5,6-dibenzanthracene 79. 1,12-benzoperylene 24. 2-chlorophenol 57. 2-nitrophenol 652. phenol (GC/MS) 34. 2,4-dimethylphenol 31. 2,4-dichlorophenol 22. parachlorometa cresol 59. 2,4-dinitrophenol 60. 4,6-dinitro-o-cresol 64. pentachlorophenol 58. 4-nitrophenol	100U ·		
58. 4-nitrophenol	2000		
A Company of the Comp		5/	

5/- Chrysene and/or 1,2-benzanthrac 6/- 3,4-benzofluoranthene and/or 11,12-benzofluoranthene.

NA - Not analyzed.

J - Estimated value.

K - Actual value is known to be less than value given.

L - Actual value is known to be greater than value given.

U, - Material was analyzed for but not detected. The number is the Minimum Detection Limit.

DATA REPORTING SHEET
EXTRACTABLE ORGANIC ANALYSIS - WASTE

-EPA, SAD, RGN. IV Athens, GA 6/79

CHEMIST E. W. Loy, Jr. REC'D. 2-6-80 COMPL'D. 4-3-80 PROJECT Reichold Chemical HWS Gulfport, MS. 80C 0289 SAD NO. SOURCE & STATION DATE/TIME Estimated Escimated Estimated COMPOUND Concentration Concentration Concentration mg/Kg · Zylene (2 isomers) $\frac{1}{}$ 3000J C3Alkyl Benzene (2 isomers) 1/ 300J Methyl phenyl ethanone $\frac{1}{2}$ 250J Methyl - methyl ethenyl cyclohexane 1/ 2500J C₄Alkyl Benzene 1/ 1700J C_5 Alkyl Benzene (2 isomers) $\frac{1}{}$ 100K Trimethyl-Bicyclo-Heptanone 1/ 100K Dihydro-Trimethyl phenyl Indene 1/ 100K

No other organic compounds detected with an estimated minimum detection limit of 100 mg/Kg

J - Estimated value.

K - Actual value is known to be less than value given.

L - Actual value is known to be greater than value given.

U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.

NA - Not analyzed.

^{1/-} Tentative identification.

SASTE BATA REPORTING SHEET

PESTICIDES/PCB'S, AND OTHER CHLORINATED COMPOUNDS

PROJECT Reichhold Chemical HWS REC'D. 2-26-80 COMPL'D. 3-31-80 CHEMIST E. W. Loy, Jr. 0 1815 Gulfport, MS. RESULTS ON WET WEIGHT BASIS 0289 80C SAD NO. RC-2 From Clay at SOURCE & STATION dumpsite. DATE/TIME 2-6-80 @ 1615 Concentra-Concentra-Concentra-Concentra-COMPOUND tion mg/kg tion mg/kg tion mg/kg tion mg/kg aldrin 2/ 0.1U dieldrin 2/ 0.20 90. chlordane (tech. mixture & metabolites) 2/ 6U 4,4'-DDT (p,p'-DDT)2/ 4,4'-DDE (p,p'-DDE)2/ 4,4'-DDD (p,p'-TDE)2/ 0.90 0.90 93. 0.90 94. a-endosulfan-Alpha 2/ 95. 0.20 b-endosulfan-Beta 2/ 96. iu endosulfan sulfate 2/ 97. 10 98. endrin 2/ 0.20endrin aldehyde 2/ 99. 10. heptachlor 2/ 100. 0.10 101. heptachlor epoxide 2/ 102. a-BHC-Alpha 2/ 103. b-BHC-Beta 2/ 0.10 0.10 γ-RHC-(lindane)-Gamma 2/ Λ-RHC-Delta 2/ 104. 0.10 105. PCB-1242 (Aroclor 1242)2/ 106. 2U PCB-1254 (Aroclor 1254)2/ PCB-1221 (Aroclor 1221)2/ PCB-1232 (Aroclor 1232)2/ 107. 611 108. 2U 109. 20 PCB-1248 (Aroclor 1248)2/ 20 110. PCB-1260 (Aroclor 1260)2/ PCB-1016 (Aroclor 1016)2/ 111. 112. 6U 6U Toxaphene 2/ 113. 6U Propaclor (Ramrod) ΝA ŇΑ Prometon NA 2,4-D NA Silvex NA 2,4,5-T 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) 2/. NA NA NA THE RESERVE OF THE PARTY OF THE

.....

Note that the second second

No. of the last of

J - Estimated value.

K - Actual value is known to be less than value given.

L - Actual value is known to be greater than value given.

U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.

^{1/-} Tentative identification.

DATA REPORTING SHEET

PESTICIDES/PCB'S, AND OTHER CHLORINATED COMPOUNDS

EPA-SAU-RON. IV Athens, GA 4/80

PROJECT Reichhold Chemical HWS CHEMIST E. W. Loy, Jr. _REC'D, 2-6-80 COMPL'D. 3-31-80 Gulfport, MS @ 1815 80c - 0288 RC-1 End of overflow SOURCE & STATION drainage pipe. DATE/TIME 2-6-80 @ 1530 Concentra-Concentra-Concentra-Concentra-COMPOUND tion ug/L tion ug/L tion ug/L tion ug/L aldrin 2/ 39330 0.1U dieldrin 2/ 90. 0.20 chlordane (tech. mixture & metabolites) 2/ 91. 39350 7U 4,4'-DDT (p,p'-DDT)2/ 39300 10 4,4'-DDE (p,p'-DDE)2/ 4,4'-DDD (p,p'-TDE)2/ 93. 39320 10 94. 39310 10 a-endosulfan-Alpha 2/ 95. 34361 111 96. b-endosulfan-Beta 2/ 111 34356 97. endosulfan sulfate 2/ 34351 endrin 2/ 98. 39390 10 99. endrin aldehyde 2/ 34366 1 U heptachlor 2/ 0.10 100. 39410 heptachlor epoxide 2/ a-BHC-Alpha 2/ 101. 39420 0.10 102. 39337 0.10 103. b-BHC-Beta 2/ 0.10 39338 0.10 104. γ-ENC-(lindane)-Gamma 2/ 39340 105. Δ -BHC-Delta 2/ 34259 0.10 PCB-1242 (Aroclor 1242)24 106. 39496 211 PCB-1254 (Aroclor 1254)2/ PCB-1221 (Aroclor 1221)2/ PCB-1232 (Aroclor 1232)2/ 107. 39504 7U 108. 39488 2 U 109. 39492 2U PCB-1248 (Aroclor 1248)2/ PCB-1260 (Aroclor 1260)2/ 110. 39500 2U 111. 39508 7U PCB-1016 (Aroclor 1016)2/ 34671 112. 20 113. Toxaphene 2/ 39400 7Ù Propaclor (Ramrod) 77729 NA ΝÀ Prometon 39056 39730 NA 2,4-D NA Silvex 39760 2,4,5-T<u> 39740</u> NA 129 2,3,7,8-Tetrachlorodibenzop-dioxin (TCDD) 2/ ΝA The second secon and the state of the second se

شعه من الهيد بالرسيد بالانتهام ميكانيد المحاصر المحاص المحاصر المحاص

J - Estimated value.

K - Actual value is known to be less than value given.

L - Actual value is known to be greater than value given.

U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.

DATA REPORTED SHEET PURGEABLE ORGANIC ANALYSIS

WY-William Rose ATHINS, UK 4/80

•	PROJECT Reichhold Chemical HWS CHEMIST	E. W. Lov. Jr.	REC'D: 2-6-80 CO	MPLET D - 4-23-8
• • • • • • • • • • • • • • • • • • • •	· Gulfport, MS			The profession of the professi
The second of th	SAD NO.	80C 0289		
العربية المنظمة المنظمة المنظمة المنظمة	SOURCE & STATION	RC - 2		
· · · · · · · · · · · · · · · · · · ·		at dump site		
and the second s	Name Interes			<u> </u>
	DATE/TIME ·	2-6-80 @ 1615		
	Compound	mg/kg	mg/kg	mg/kg
	dichlorodifluoromethane2/	20 Ư		3
	metnyl chloride2/	200	·	
	methyl bromide ² / vinyl chloride ² /	20U -		
	chloroethane2/	200		ļ
	methylene chloride2/	200		
	trichlorofluoromethane2/	20U		
	1,1-dichloroethylene	· 20U		
	1,1-dichloroethane2/	200	•	•
	1,2-trans-dichloroethylene2/	200		1.
	1,2ichloroethane2	20U 20U		
	1,1,1-trichloroethane 2	20U .		<u> </u>
	carbon tetrachloride2	20U		
	dichlorobromomethane2/!	200	.:	
	1,2-dichloropropane2	200		1
	1,3-dichloropropylene2/	· 20U		
	trichloroethylene2/	200		
The second secon	benzene ² /	38	<u> </u>	
	chlorodibromomethane2/	20U	•	• •
	2-chloroethyl vinyl ether (mixed) ² /	20U 20U	<u> </u>	-
a beautiful and the second and the	bromoform2/	200		
THE RESERVE OF THE PROPERTY OF THE PARTY OF	1,1,2,2-tetrachloroethane2/	200	· · · · · · · · · · · · · · · · · · ·	
	tetrachloroethylene2/	20ป		
	toluene ^Z /	· 5.30		
	chlorobenzeneZ/	20U		•
	ethylbenzene ² / acrolein ² /	570		
	acrylonitrile2	400U		<u> </u>
	Total Unidentified Hydrocarbons	35,000J		
		33,0000		
			· · · · · · · · · · · · · · · · · · ·	
				
				1: : : : : : : : : : : : : : : : : : :
	1	<u> </u>		
		<u> </u>		1
	The state of the s	 		
				
				
				-
The state of the s				-
- Description of the Asset States of the Sta				•
The second secon	-			
		ļ		
The first of the second				
				<u> </u>
protection and home processes and significant remains and the first in a processes of the contract of the cont				
The state of the second				
	T Postmetel and			

J - Estimated value.

K - Actual value is known to be less than value given.

L - Actual value is known to be greater than value given.

U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.
NA - Not analyzed.

^{2/-} Tentative identification. 2/- On WRDC List of Priority Pollutants.

DATA REPORTING SHEET PURGEABLE ORGANIC ANALYSIS.

PROJECT Reichhold Chemical HWS CHEMIST E. W. Loy, Jr. REC'D. 2-6-80

Bris - Mile Roll TV ATHENS, GA 4/80

COMPLET'D - 4-23-80

· Gulfport, MS SAD NO. 80C 0288 RC - 1SOURCE & STATION Drainage Pipe DATE/TIME 2-6-80 @ 1530 Compound ug/L ug/L ug/L dichlorodifluoromethane2/ 511 34668 methyl chloride2/ 34418 5U methyl bromide2 34413 511 vinyl chloride2/ 39175 5บ chloroethane2/ 34311 5ช methylene chloride2/ 34423 5บ 34488 trichlorofluoromethane2 511 34501 1,1-dichloroethylene2/ 5*u* 34496 1,1-dichloroethane2/ 5ช 34546 1,2-trans-dichloroethylene2/ 5U 32106 chloroform Z/ ·5U 32103 1,2-dichloroethaneZ/ 5U 1,1,1-trichloroethane 34506 carbon tetrachloride2/ 50 32102 dichlorobromomethane2/ 511 34328 1,2-dichloropropane2/ 34541 1,3-dichloropropylene2/ <u>39704</u> 5U trichloroethylene2/ 39180 5U benzene2/ 34030 5K chlorodibromomethane2/ 34306 5U 1,1,2-trichloroethane2/ 5U 34511 2-chloroethyl vinyl ether $(mixed)^{2/34576}$ 5U รับ bromoform2/ 32104 1,1,2,2-tetrachloroethane2/ 34516 50 tetrachloroethylene4 34475 5ช_ toluene2/ 34010 chlorobenzene2/ 5บ 34301 ethylbenzene2/ 34371 5U acrolein2/ 34210 1000 acrylonitrile2/ 34215 100Ū· Total Unidentified Hydrocarbons and the second s

J - Estimated value.

K - Actual value is known to be less than value given.
L - Actual value is known to L - Actual value is known to be greater than value given.

U - Material was analyzed for but not detected. The number is the Minimum Detection Limit
NA - Not analyzed.

1/- Tentative identification.

^{2/-} On NRDC List of Priority Pollutants. On want Dist of Thomas Andrews

DATA REPORTING SHEET WATER

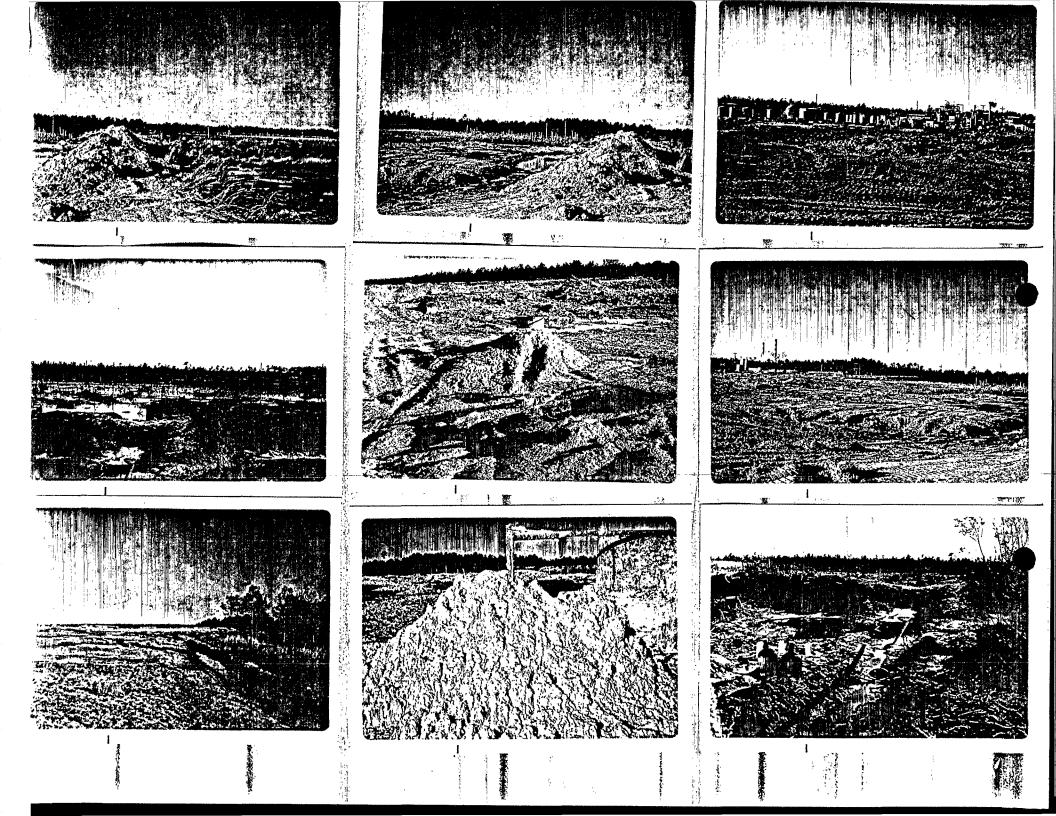
	PROJECT Reichold Chemical	Co. CHEMIST Bil	1 McDanial REC'	0 2/6/80	COMPL'D3/4/80
	Gulfport, Ms.		- <u> </u>	in the second se	The goal red of the property of the comments o
	SAD NO. 80C-	0288			.
	SOURCE & STATION	RC-1			
	DATE/TIME	2/6/80 @ 1530			
negative section of the section of t	ELEMENT (ug/l)				
	Silver 01077	10K			
	Arsenic 01002	40K			
	Boron 01022		<u> </u>		
	Barium 01007	88			
	Beryllium 01012	10K			
	Cadmium 01027	.25K	•		
	Cobalt 01037	10K			
	Chromium 01034	10K			
		15			
The second secon	Molybdenum 01062	*20K			
**************************************	Nickel 01067	42	<u> </u>		
	Lead 01051	25K			
	Antimony 01097	-25K			
	Selenium 01147	40K			
	Tin 01102	50K			
	Strontium 01082	132			
	Tellurium 01064	40K			
	Titanium 01152	10K			
				,	
	Thallium 01059	100K			····
	Vanadium 01087	10K			
	Yttrium 01203	10K	C AND THE SECOND STATES		
	Zinc 01092	51			
	Zirconium 01162	10K			
	Mercury 71900	0.2K			
	ELEMENT (mg/l)				
	Silicon				
		90			
	-	80			
	Magnesium 00927	11	 	<u> </u>	
	Aluminum	0.4	1		·
	Iron	5.2	<u> </u>		
	Manganese .	0.2	<u> </u>		
	Sodium 00929	28		<u> </u>	
	K - Actual value is known	to be less than va	ilue given.	-	

DATA REPORTING SHEET SEDIMENT

·	2		SEDIMENT		• · · · · · · · · · · · · · · · · · · ·
	PROJECT Reichold Chemical H	WS CHEMIST K	H. McDaniel REC'E	2/6/80	COMPL'D 3/21/8
Antigential and many the control of the second		April 77			
	SAD NO.	80C 0289			
erior of the	SOURCE & STATION	RC-2			
		•			
	DATE/TIME	2/6/80 @ 1615	·		
	ELEMENT (mg/kg)	•			
	Silver 01078	1K .	2		
	, Arsenic 01003	15K ·			
	Boron 01023				
	Barium 01008	9			
	Beryllium 01013	1K			
	Cadmium 01028	. 1K			-
	Cobalt 01038	3K			
	Chromium 01029	6			
Commence of the second	Copper 01043	70	•	i	
	Mclybdenum 01063	3K			
	Nickel 01068	159			
	Lead 01052	14K			
	Antimony 01098	14K	;		
	Selenium 01148	23К	·		
	Tin 01103	5K	*		•
	Strontium 01083	12		•	
	Tellurium	. 8K		•	
	Titanium 01153	5	•		
	Thallium	19K		•	* .*
	Vanadium 01088	1K			
	Yttrium	1K			
Strate that the second	Zinc 01093	823	•		
	Zirconium 01163	1K			
		0.05		<u> </u>	
	Mercury	_		· · · · · · · · · · · · · · · · · · ·	-
	Silicon Calcium 00917	96K			
				<u> </u>	
	Magnesium 00924	1538	-	 	
	Aluminum · · · 01108	60,096		1	
	<u>Iron</u> 01170	1827			
	Manganese 01053	19			
	Sodium 00934	1154	•	-	
	Percent Moisture (%)	45%	ralue of year		
e grand and an Editor realizable (1997) 🎉 .	K - Actual value is known	to be less than y	value given.		

PICTURE IDENTIFICATION LEFT TO RIGHT, TOP TO BOTTOM

- 1. East side of landfill note dike and marshland.
- 2. East side of landfill dike area and water to left.
- 3. Looking west over landfill towards plant.
- 4. North end of impoundment, site for sample RC-1.
- 5. Filter cake material, RC-2 sample point.
- 6. Looking west over landfill towards plant.
- 7. South end of landfill.
- 8. Close-up of filter cake material on landfill.
- 9. Exit point, water flowing through pipe at north end of dike.



UN. O A ENVIRONMENTAL PROTECTION A NCY Muster to Le

copy to State 4/14/160

DATE: APR 2 2 1980

SUBJECT: Potential Hazardous Waste Site - Site Inspection Report Reichhold Chemical Company Landfill Site, Gulfport, Mississippi

FROM: Water Surveillance Branch

and the

TO: Wayne Mathis, Chief

Abandoned Waste Site Unit

THRU: M. D. Lair, Chief

Engineering Section

SUBJECT

Attached is the site inspection report form for the subject site.

ACTION

For your information.

BACKGROUND

Oral request from Wayne Mathis on February 14, 1980.

William R. Davis

Attachment

cc: Finger Carter/Lair

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY ATHENS, GEORGIA 30613

DATE: MAY 15 1980

SUBJECT: Hazardous Waste Site Investigation, Reichhold Chemical Company, Gulfport, MS

FROM: Water Surveillance Branch

To: James H. Scarbrough, Chief Residuals Management Branch

SUMMARY

Attached are six copies of the investigation of the subject hazardous waste site conducted on February 6, 1980. The hazardous waste site inspection form for this facility was sent to Wayne Mathis on April 22, 1980. The site has been diked to prevent leachate from escaping the fill area; however, rainfall and seepage through the fill has caused a discharge which contains an appreciable number of organic compounds. The runoff apparently constitutes a point source discharge.

ACTION

For your information and use.

BACKGROUND

Hazardous waste site investigation commitments.

Nelliam R. Davis William R. Davis

Attachment

cc: Wayne Mathis
Sarah Turnipseed
Finger/Adams
Lair/Carter
Carroll/Bennett

Reichold Chemical Company Reichold Road Gulaport, Mississippi 39501

Attention: Mr. O. U. Thomas, Plant Manager

Gentlemen:

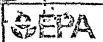
Enclosed is the report for the site investigation conducted at your facility by the Environmental Protection Agency on February 6, 1980. Thank you for your assistance on this matter.

Sincerely yours

Sincerely yours.

Wayne R. Mathis
Program Manager Disposal Site Unit Air & Hazardous Materials Division

WMathis:ga:6-10-80:2234



POTE AL HAZARDOUS WASTE SITE SITE INSPECTION REPORT.

-		and the second s
	REGION	SITE NUMBER (to be assign
•		ed by Hq)
	ı	

GENERAL INSTRICTIONS: Complete Sections I and III through XV of this form as completely as possible. Then use the information on this form to develop a Tentative Disposition (Section II). File this form in its entirety in the regional Hazardous Waste Log File. Be sure to include all appropriate Supplemental Reports in the file. Submit a copy of the forms to: U.S. Estimated Protection Agency; Site Tracking System; Hazardous Waste Enforcement Tack Force (EN-335); 401 M St., SW; Washington, DC 20460.

	I SITE IDEN	TIFICATION		
A. SITE NAME	1. 3112 1021		her identifier)	
	rical- Company			·
	TIETE COMPANY			
C. CITY		1		l l
GULFPORT		M5.	39501	HARRISON
G. SITE OPERATOR INFORMATION				
1. NAME	_			2. TELEPHONE NUMBER
SAME AS ABOU	€			
3. STREET				+ * = TATE
3.31821	4. 61. 1			
H. REALTY OWNER INFORMATION (ii	f different from operator of site)			
1. NAME	ABOUG 4. CITY 5. STATE 6. ZIP CODE 2. TELEPHONE NUMBER 2. TELEPHONE NUMBER 4. STATE 6. ZIP CODE 17. ACTES OF LAND ADJACENT TO PLANT — OVER MARSHY AREA. 2. STATE 3. COUNTY 4. MUNICIPAL II. TENTATIVE DISPOSITION (complete this section last) III. TENTATIVE DISPOSITION (complete this section last) III. HIGH 2. MEDIUM 3. LOW 4. NONE III. INSPECTION INFORMATION III. INSPECTION INFORMATION 2. TITLE ENVIRONMENTAL SCIENTIST 4. TELEPHONE NO. (Gree code & no.) 404 - 546 - 3/72 NTS 2. ORGANIZATION 3. TELEPHONE NO.			
3. CITY			+	4. STATE TE. ZIP CODE
I. SITE DESCRIPTION		<u> </u>	 	
1. SITE DESCRIPTION		, , ,		
APPROXIMATELY IZ A	icres of land a	Stacent to	plant -	- OVER MARSHY AREA.
J. TYPE OF OWNERSHIP			<u> </u>	
1. FEDERAL 2. STAT	E 3. COUNTY T	4. MUNICIPAL	5. PRIVA	TE
				· · · · · · · · · · · · · · · · · · ·
	TT are political and the same and a second			
			section last)	
A. ESTIMATE DATE OF TENTATIVE	B. APPARENT SERIOUSNES	S OF PROBLEM	1 me 1	· · · · · · · · · · · · · · · · · · ·
DISPOSITION (mo., day, & yr.).	1. HIGH	2. MEDIUM	3. LOW	A. NONE
C. PREPARER INFORMATION			<u> </u>	
1. NAME	٠ ــــــــــــــــــــــــــــــــــــ	2. TELEPHONE	NUMBER	3. DATE (mo., day, & yr.)
	•			
			1	*
	III, INSPECTION	N INFORMATION	1	
A. PRINCIPAL INSPECTOR INFORMA	TION			
1. NAME	•	2. TITLE	-	
William R. DAV	/15	2000000000	Jantal So	ciontict
3. ORGANIZATION	_ _ _ _ _ _	CIANIEDIO		
		•	-	
U.S. EPA REGIOND	I, SAD		<u> </u>	404-546-3172
B. INSPECTION PARTICIPANTS				
1. NAME	2. ORGA	NIZATION		3. TELEPHONE NO.
Share Wilahama	540 0	-	!	404-5116-3173
Shane Hitcheock	SAU, REGION IL	·	<u> </u>	707 346 31)2
			, ,	4
JiM HARdage	MISS. DIV. O S	olid Wast	e Mat.	601-982-6318
			."	
C TITE DEPRESENTATIVES INTERV	NEWED (comparate officials, work	ers. residents)		
	I			ADDRESS !
1. NAME	Z. ITILE & FELEPHONE NO	''	+	NADORE33
	344 - 444			
O. U. THOMAS	PIANT MANAGE	L KEI	CHNOLD CI	tem.co., Gultport, MS
•				
,			1	•
1				
				
	-		1	
,			<u> </u>	
	1 ·····		T	
	i .	1	I .	
\$ \$				
			<u> </u>	
			: .	

			ISPE	CTION INFORMATION	(cont	linued)		
D. GENERATOR INFORMATION	, , , , , , , , , , , , , , , , , , , 			•				
1. NAME	2. TE	LEPHONE NO	· [3. AC	DRE	ss	4. WASTE TY	PE GENERATED
	1		l		ĺ	j		
	L				_			-
-					i		<u>L</u>	
E. TRANSPORTER/HAULER IN	· · · · · · · · · · · · · · · · · · ·		— т		, r		4 WA) m m m m m m m m m m m m m m m m m m m
1. NAME	Z. TE	LEPHONE NO		3. AC	URE		A.WASTE TYP	ETRANSPORTED
						e.		
	<u> </u>							
	1							
E IE WASTE IS DOOD	N 51==	AND ALCO CO	11855	D TO OTHER CITES '	NTI	V OFF-CITE CACH 'TIT	3 11650 505	DISPOSAL
F. IF WASTE IS PROCESSED O	T	LEPHONE NO		U TO OTHER SITES, IDE	14 1 1 F	3. ADDRESS	J JJCD FOR	SISPUSAL.
					i	-		
				. —	ĺ			
· · · · · · · · · · · · · · · · · · ·		****	\dashv					the second of th
								•
G. DATE OF INSPECTION H. TI				I. ACCESS GAINED BY:	(cred	entials must be shown in	all cases)	
(mo., day, & yr.) 2/6/86 J. WEATHER (describe)	LAT	ternoon		1. PERMISSION		2. WARRANT		
		· 			Ţ	-	••	.1
BRIGHT & SUNNY			T7 7	CAMPI INC INCOME	101-	:		
A. Mark 'X' for the types of s	samples	3 taken and i		SAMPLING INFORMAT		t e.g., regional lab. of	her EPA lah	, contractor-
etc. and estimate when the								
		2. SAMPLE			D1 -	SENT TO:		4.DATE
1.SAMPLE TYPE		TAKEN (mark 'X')		J.SAM	S.SAMPLE SENT TO:			AVAILABLE AVAILABLE
a. GROUNDWATER	Ì					•		
					-			
b. SURFACE WATER		X	_5	AD LABORATORY	, A	THENS, GA.		4/20/80
c. WASTE		,			/	1. n		11 11 4
·		X	1,			- · · · · · · · · · · · · · · · · · · ·		
d. AIR								
				· · · · · · · · · · · · · · · · · · ·				
e. RUNOFF						· · · · · · · · · · · · · · · · · · ·		
f. SPILL								
								<u> </u>
g. soit							•	
:				<u> </u>			· · · · · · · · · · · · · · · · · · ·	
h. VEGETATION	-	• •			[•	
i. OTHER(specify).					- 1		şir.	
								<u> </u>
	KÉN (e	(e.g., radioactivity, explosivity, PH, etc.)			_		Felt To	
1.TYPE		2. LOCATION OF MEASURE		OF MEASUREMENTS		3.8	ESULTS	
					\dashv			
					T			
					_		<u>, , ,</u>	
·								

Continued From Front

Continue On Page 5

C LEBEST

wg alegiali'

Continued From Page 2			-		Tuanum m		
	IV. SAMPL	LING INFORMAT	FION (continue	ed)			
C. PHOTOS							
1. TYPE OF PHOTOS	1	2. PHOTOS IN CU		1			
a. GROUND b. AEF	RIAL	K. DA	UiS / SAD	File			
D. SITE MAPPED?							
TES. SPECIFY LOCATION	OF MAPS: SAD T	File	-		±		
E. COORDINATES							
1. LATITUDE (degminsec.)		2.	LONGITUDE (
30 22" 0			89	°05"30'			
	V	7. SITE INFORM					
A. SITE STATUS							
1. ACTIVE (Those inductrial of municipal sites which are being us for waste treatment, storage, or dis on a continuing basis, even if infrequently.)	ed sites which no lo sposal wastes.)	onger receive (7	Those sites tha	ER (specify): s that include such incidents like ''midnight dumping'' gular or continuing use of the site for waste disposal ls)			
B. IS GENERATOR ON SITE? 1. NO 2. YES(sp	ecify generator's four-dig	git SIC Code):					
							
C. AREA OF SITE (in acres)	1 .	BUILDINGS ON T	_	_			
APPYOY. 12 acres	≥ 1. NO	2. YES(speci	ify):				
Tryviol . I C ULVES		· · · - · · · · · · · · · · · · · · · ·	<u> </u>				
Indicate the major site activity(i		TERIZATION O			oto hovos		
Indicate the major site activity (es) and details relatin	ng to each activity	ty by marking	X. In the abbiobit	ate boxes.		
A. TRANSPORTER	B. STORE	ER	C. TRE	EATER	D. DISPOSER		
1.RAIL	1.PILE		1. FILTRATION		1. LANDFILL		
2.5HIP	2.SURFACE IMPOU	JNDMENT :	2. INCINERATION		2. LANDFARM		
3.BARGE ,	3. DRUMS		3. VOLUME REDUCTION		3. OPEN DUMP		
X 4. TRUCK	4. TANK, ABOVE G		4.RECYCLING		4.SURFACE IMPOUNDMENT		
5. PIPELINE	5. TANK, BELOW G			S./TREATMENT	5. MIDNIGHT DUMPING		
5. OTHER(specify):	6. OTHER (specify):	· · · · · - - 	6. BIOLOGICAL TREATMENT		6. INCINERATION		
		<u> -</u>		REPROCESSING	7. UNDERGROUND INJECTION		
		 -	8. SOLVENT RI		8. OTHER(specify):		
		<u></u> '	9.OTHER(spec	cify):			
			i	-			
	i						
·			1				
E. SUPPLEMENTAL REPORTS: If which Supplemental Reports you			listed below, S	Supplemental Reports	must be completed. Indicate		
1. STORAGE	2. INCINERATION	3. LANDFILL	4. SURI	FACE DUNDMENT 5	. DEEP WELL		
6. CHEM/BIO/ PHYS TREATMENT	7. LANDFARM	8. OPEN DUMP	9. TRA	NSPORTER 1	0. RECYCLOR/RECLAIMER		
	VII. WA	STE RELATED	INFORMATIO	N .			
A. WASTE TYPE							
1. LIQUID	2. SOLID	3. SLUDGE	4. GAS	•	ر د الم رد د		
B. WASTE CHARACTERISTICS					· · · · · · · · · · · · · · · · · · ·		
	2. IGNITABLE	3. RADIOACTIV	A HIGH	HLY VOLATILE			
	6. REACTIVE	7. INERT		MMABLE	The spatial of the sp		
	*			(MINIÓDEC	ا منظورة الرابع الله الله الله الله الله الله الله الل		
S 9. OTHER (specify): 514	Hu caluble -	Some Solu	ient		•		
C. WASTE CATEGORIES	· · · · · · · · · · · · · · · · · · ·				· .		
1. Are records of wastes available	Specify items such as	manitests, invend	ones, etc. pero	w.			
			1	2 2	. • :		

PAGE 3 OF 10

EPA Form T2070-3 (10-79)

Continue On Reverse

	nued)	
ı		-
•		
:	• •	
C. WORKER INJURY/EXPOSURE		
D. CONTAMINATION OF WATER SUPPLY		
E. CONTAMINATION OF FOOD CHAIN		······
	·	
·		
i		
T. CONTAMINATION OF GROUND WATER		
	, , , , , , , , , , , , , , , , , , ,	,
G. CONTAMINATION OF SURFACE WATER		•
SG. CONTAMINATION OF SURFACE WATER AVCA has been dited which causes		•
Avea has been diked which causes water. Advantue has been provided for		•
AVCA has been ditted which causes water. Advantage has been provided for ditted avea. This drainage is contaminated		•
Avea has been ditted which causes water. Advantue has been provided for ditted area. This drainage is contaminated ariginating in the fill area		
Avea has been diked which causes water. Advantage has been provided for diked area. This drainage is contaminated driginating in the fill area.		
Avea has been dired which causes water. Advantifie has been provided for dired area. This drainage is contaminated		

VIII. HAZARD DESCRIPTION (continued) IL PISH KILL IL PISH KILL IL PISH KILL IL PISH KILL IL CONTAMINATION OF AIR IL CONTAMINATION OF SOIL IL CONTAMINATION OF SOIL	VIII. HAZARD D	ESCRIPTION (conti	nued)	1
T. FISH KILL J. CONTAMINATION OF AIR K. NOTICEABLE ODORS M. PROPERTY DAMAGE		- Torr (contr.		
FISH KILL FISH KILL CONTAMINATION OF AIR NOTICEABLE ODORS L. CONTAMINATION OF SOIL M. PROPERTY DAMAGE	TI THE BANKAGE TO TECKAT PACKA	Manu.	7-7	المنطال
L. CONTAMINATION OF AIR L. CONTAMINATION OF SOIL M. PROPERTY DAMAGE				
L. CONTAMINATION OF AIR L. CONTAMINATION OF SOIL M. PROPERTY DAMAGE				
L. CONTAMINATION OF AIR L. CONTAMINATION OF SOIL M. PROPERTY DAMAGE	•			i
L. CONTAMINATION OF AIR L. CONTAMINATION OF SOIL M. PROPERTY DAMAGE				
L. CONTAMINATION OF AIR L. CONTAMINATION OF SOIL M. PROPERTY DAMAGE				l
J. CONTAMINATION OF AIR NOTICEABLE ODORS L. CONTAMINATION OF SOIL. M. PROPERTY DAMAGE			195	-]
J. CONTAMINATION OF AIR NOTICEABLE ODORS L. CONTAMINATION OF SOIL. M. PROPERTY DAMAGE				- 1
J. CONTAMINATION OF AIR NOTICEABLE ODORS L. CONTAMINATION OF SOIL. M. PROPERTY DAMAGE				l
J. CONTAMINATION OF AIR NOTICEABLE ODORS L. CONTAMINATION OF SOIL. M. PROPERTY DAMAGE				
☐ K. NOTICEABLE QDORS ☐ L. CONTAMINATION OF SOIL ☐ M. PROPERTY DAMAGE	. FISH KILL	• •		
☐ K. NOTICEABLE QDORS ☐ L. CONTAMINATION OF SOIL ☐ M. PROPERTY DAMAGE			****	
☐ K. NOTICEABLE QDORS ☐ L. CONTAMINATION OF SOIL ☐ M. PROPERTY DAMAGE				i
☐ K. NOTICEABLE QDORS ☐ L. CONTAMINATION OF SOIL ☐ M. PROPERTY DAMAGE				-
☐ K. NOTICEABLE ODORS ☐ L. CONTAMINATION OF SOIL ☐ M. PROPERTY DAMAGE				`
☐ K. NOTICEABLE ODORS ☐ L. CONTAMINATION OF SOIL ☐ M. PROPERTY DAMAGE			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	İ
☐ K. NOTICEABLE ODORS ☐ L. CONTAMINATION OF SOIL ☐ M. PROPERTY DAMAGE			·	1
☐ K. NOTICEABLE ODORS ☐ L. CONTAMINATION OF SOIL ☐ M. PROPERTY DAMAGE	·			
☐ K. NOTICEABLE ODORS ☐ L. CONTAMINATION OF SOIL ☐ M. PROPERTY DAMAGE				
☐ K. NOTICEABLE ODORS ☐ L. CONTAMINATION OF SOIL ☐ M. PROPERTY DAMAGE				į
☐ K. NOTICEABLE ODORS ☐ L. CONTAMINATION OF SOIL ☐ M. PROPERTY DAMAGE	J. CONTAMINATION OF AIR			
L. CONTAMINATION OF SOIL M. PROPERTY DAMAGE			1	
L. CONTAMINATION OF SOIL M. PROPERTY DAMAGE				
L. CONTAMINATION OF SOIL M. PROPERTY DAMAGE		•	· I	
L. CONTAMINATION OF SOIL M. PROPERTY DAMAGE	,		; ; ;	
L. CONTAMINATION OF SOIL M. PROPERTY DAMAGE				
L. CONTAMINATION OF SOIL M. PROPERTY DAMAGE				- 1
L. CONTAMINATION OF SOIL M. PROPERTY DAMAGE	•			
L. CONTAMINATION OF SOIL M. PROPERTY DAMAGE				
L. CONTAMINATION OF SOIL M. PROPERTY DAMAGE				
L. CONTAMINATION OF SOIL M. PROPERTY DAMAGE	M. MOTIGEAN E OPONS	·		<u> </u>
L. CONTAMINATION OF SOIL M. PROPERTY DAMAGE	K. NOTICEABLE ODORS			
L. CONTAMINATION OF SOIL M. PROPERTY DAMAGE				
L. CONTAMINATION OF SOIL M. PROPERTY DAMAGE				-
L. CONTAMINATION OF SOIL M. PROPERTY DAMAGE				
L. CONTAMINATION OF SOIL M. PROPERTY DAMAGE		••		
L. CONTAMINATION OF SOIL M. PROPERTY DAMAGE				
L. CONTAMINATION OF SOIL M. PROPERTY DAMAGE	,		• • • • • • • • • • • • • • • • • • •	1
L. CONTAMINATION OF SOIL M. PROPERTY DAMAGE	- ·			
L. CONTAMINATION OF SOIL M. PROPERTY DAMAGE				
M. PROPERTY DAMAGE		<u>,,,,</u>		
M. PROPERTY DAMAGE	L. CONTAMINATION OF SOIL		•	·
☐ M. PROPERTY DAMAGE				
M. PROPERTY DAMAGE	•			
M. PROPERTY DAMAGE			· 	
M. PROPERTY DAMAGE				
			*	
÷				
	•			
÷				
÷	•			
· ————————————————————————————————————	M. PROPERTY DAMAGE			
		•		-
				•
	*			- 11
		,		
EPA Form T2070-3 (10-79) PAGE 5 OF 10 Continue On Page 7				
	1			

Continued From Page 6	
VIII. HAZARD DESCRIPTION (cont	inued)
N. FIRE OR EXPLOSION	
	<u></u>
	사 사 () : -는- () : 10 (10 (10 (10 (10 (10 (10 (10 (10 (10
f	A Part of the second second
	:
O. SPILLS/LEAKING CONTAINERS/RUNOFF/STANDING LIQUID	▶ at the second of the second
	÷
	, in the second
P. SEWER, STORM DRAIN PROBLEMS	
	A section of the sect
Q. EROSION PROBLEMS	
•	
	epo*
] R. INADEQUATE SECURITY	The second secon
-	
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
•	
	- • •
S. INCOMPATIBLE WASTES "	Line s
,	
	J.
EPA Form T2070-3 (10-79) PAGE 7 OF 10	Continue On Reverse

. '...

				ALVERT OF THE SECOND
	•	•		and the second
·	VIII. HAZARD DESC	PIRTION (seedings)		7
T. MIDNIGHT DUMPING .	VIII. HAZARD DESC	RIF HUN (continued))	
				-,
	•			
			AF -	
•				
		ļ		
			د	
U. OTHER (specify):				
		1 2 3 4 5	**	
				· -
			·	
		!		
	-			•
	•	ř.		· · · · ·
				-
			•	-
	·	İ		
	والمراجع والمستعاد والمستعاد والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع			==
	TV DODUL TIOU DIDECT	ELV ASSESTED OV	to the teacher of the	
	IX. POPULATION DIRECT			
A.LOCATION OF POPULATION	B. APPROX. NO. OF PEOPLE AFFECTED	AFFECTED WITH	OF BUILDINGS AFFECTED	E. DISTANCE TO SITE (specify units)
1.IN RESIDENTIAL AREAS	NONE	NONE	NONE	
2. IN COMMERCIAL OR INDUSTRIAL AREAS	300+			zooject
3. TRAVELLED AREAS	NONE			
4. PUBLIC USE AREAS (parks, schools, etc.)	NONE			
A. DEPTH TO GROUNDWATER(speci		HYDROLOGICAL D	ATA C. GROUNDWATER USE IN	VICINITY
,	Northware		NONE	
D. POTENTIAL YIELD OF AQUIFER	E. DISTANCE TO DRIN	KING WATER SUPPL		NG WATER SUPPLY
G. TYPE OF DRINKING WATER SUP	PLY			
	2. COMMUNITY (specify town): > 15 CONNECTIONS	745 deep	well on proper	4
3. SURFACE WATER	4. WELL		<u>-</u>	
EPA Form T2070-3 (10-79)	PAGE	8 OF 10	Conti	nue On Page 9

Continued From I	Page 8					 7 <u></u>
		X. WATER AND HYDROLOGICA	L DATA (k	ontinued)		
H. LIST ALL DRIN	KING WATER WEL	LS WITHIN A 1/4 MILE RADIUS OF SITE		· .		
1. WELL	2. DEPTH (specify unit)	3. LOCA (proximity to popula	TION stion/buildir	1&s)	NON-COM- MUNITY (mark 'X')	5. COMMUN- ITY (mark 'X')
V/1)	745 feet	LOCATED NEARBY & M	nnutact	tunna avea	×	
	0		777700	40.00		
			<u> </u>			
			1		1	
					. [
I. RECEIVING WA	TER					
1. NAME	1	2. SEWERS	. STREAMS	RIVERS		•
Big (ANA	_	4. LAKES/RESERVOIRS	. OTHER(S	nacify):	•	
6. SPECIFY USE	AND CLASSIFICAT	ION OF RECEIVING WATERS				
	•					
		XI. SOIL AND VEGITAT	ION DATA			
LOCATION OF SI			7 - 400 3		THE WEET AND	. ">=
A. KNOWN F	AULT ZONE	B. KARST ZONE] C. 100 YE	AR FLOOD PLAIN	6. WETLAND	'
E. A REGUL	ATED FLOODWAY	F. CRITICAL HABITAT	G. RECHA	ARGE ZONE OR SOLE S	OURCE AQUIFER	
		XII. TYPE OF GEOLOGICAL MA	<u>.</u>			
Mark 'X' to indic	ate the type(s) of	geological material observed and spe	cify where	necessary, the compo	nent parts.	
'X A. CVERBUF	'X	B. BEDROCK (specify below)	x'	C. OTHER	(specify below)	
N. OVERBOI		B. Bebliedik (openity delen)				
1. SAND			×	Spoil area t	Cu duala	un tarret
				Spoil area i	er wreage i	ia levicos
2. CLAY				` .	•	
3. GRAVEL						
3. GRAVEE						····
		XIII. SOIL PERMEA	BILITY			·
🔀 A. UNKNOWN	ı	B. VERY HIGH (100,000 to 1000	cm/sec.)	C. HIGH (1000 to	10 cm/sec.)	
1 ==	E (10 to .1 cm/sec.		ini, sec.,		001 to .00001 cm/s	*c•)
G. RECHARGE AF						
i. YES	2. NO 3. C	COMMENTS:			÷.	. 5 .
H. DISCHARGE A	REA	•	[<u> </u>	-	
1. YES	2. NO 3. C	COMMENTS:	-			<u> </u>
1. ESTIMATE % C	FSLOPE 2.5	PECIFY DIRECTION OF SLOPE, CONDI	TION OF SL	OPE, ETC.		
	, "	Near ScaleveL	!			
J. OTHER GEOLG	GICAL DATA	NEAR SCAPEUR L				
			1			
				•		
_						tj.
,						
1				-		:

PAGE 9 OF 10

EPA Form T2070-3 (10-79)

Continue On Reverse

Continued From Front		,		:	·			
,		XIV. PERMIT INFO						
List all applicable permits he	eld by the site an	d provide the related inf	ormation.					
			D. DAT	Ė	E. EXPIRATION		COMPLI (mark 'X')	
A. PERMIT TYPE (e.g.,RCRA,State,NPDES,etc.)	B. ISSUING AGENCY	C. PERMIT NUMBER	ISSUE (mo.,day,	מְ	DATE (mo,,day,&yr.)	1. YES	2. NO	3.UN-
NPDES	USEPA	M5000 1520	6/28	74	3/31/79			X
				:				
·	****			:				
			 					-
				<u> </u>				-
·						<u>-</u>		
	XV. PAST	REGULATORY OR EN	FORCEME	NT AC	TIONS		·	
NONE YES (summ	arize in this space)					-		
	, , , , , , , , , , , , , , , , , , ,							
				[_		
					,	,		
	,*							
•								
· .								
	1			ì	••••	٠.		
				i	* -			i. As
NOTE: Based on the info	rmation in Secti	ons III through XV. fi	ll out the	Tentat	ive Disposition (Section	II) info	mation
on the first page							,	£.'
EPA Form T2070-3 (10-79)		PAGE	10 OF 10	i				

:

Section 1

LAND FARM SITE INSPECTION REPORT (Supplemental Report)	INSTRU Answer and as necessa	d Explain
1. STATE PERMIT		در المحدد المحد
2. AREA (Dimensions of Site)		
3. APPLICATION RATE		
4. IMPROPER DISPOSAL OF UNAUTHOPIZED MATERIALS IN LAND FARM		-
TYES HO 5. DIVERSION STRUCTURES ARE EFFECTIVELY CONSTRUCTED AND PROPERLY M THE NO	AINTAINED	
6. EVIDENCE OF PONDING OF LIQUID ON SITE		
7. ODORS (especially hydrogen sulfide) (If YES, indicate) YES NO		-
		. uniss - = 1
8. GENERAL PHYSICAL APPEARANCE OF SOIL (Color, Send/Silt/Clay Content)		
	•	-
in M.		, .
	**	
i i i i i i i i i i i i i i i i i i i		
i i i i i i i i i i i i i i i i i i i		
i i i i i i i i i i i i i i i i i i i		
i i i i i i i i i i i i i i i i i i i		
i i i i i i i i i i i i i i i i i i i		
9. VEGET ATION ON LAND FARM		
i i i i i i i i i i i i i i i i i i i		
9. VEGET ATION ON LAND FARM		
9. VEGET ATION ON LAND FARM		
9. VEGET ATION ON LAND FARM		

(Supplemental Report)	as Necessary	Explain •
INCINERATION OF ALL SUBSTANCES APPROVED BY REGULATORY AGENCY		. :-
YES NO		4.5
LIST ALL SUBSTANCES INCINERATED, INDICATING WHETHER OR NOT APPROVAL E	X15 1 5.	
	•	
		: -
	±₹ .	1
·	•	, .
		I
		==
	•	·
		-
COMBUSTION EFFICIENCY MONITORED YES NO (Explain)	•	
[] 123 [] NO (Explain)	fores -	·
TEMPERATURE, GAS FLOW, RETENTION CALCULATIONS, AND COMBUSTION ZONE M	ONITORED	
TYES NO		
MONITORING EQUIPMENT FUNCTIONING PROPERLY		
MONITORING EQUIPMENT FUNCTIONING PROPERLY YES NO		i de la companya de la companya de la companya de la companya de la companya de la companya de la companya de
YES NO ADEQUATE MAINTENANCE OF EMISSION CONTROL EQUIPMENT YES NO		
YES NO ADEQUATE MAINTENANCE OF EMISSION CONTROL EQUIPMENT YES NO MONITORING PORTS IN INCINERATOR (Indicate Position)		
YES NO ADEQUATE MAINTENANCE OF EMISSION CONTROL EQUIPMENT YES NO		1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
YES NO ADEQUATE MAINTENANCE OF EMISSION CONTROL EQUIPMENT YES NO MONITORING PORTS IN INCINERATOR (Indicate Position) YES NO		
YES NO ADEQUATE MAINTENANCE OF EMISSION CONTROL EQUIPMENT YES NO MONITORING PORTS IN INCINERATOR (Indicate Position) YES NO WASTE FLOW RATE MONITORED		
ADEQUATE MAINTENANCE OF EMISSION CONTROL EQUIPMENT YES NO MONITORING PORTS IN INCINERATOR (Indicate Position) YES NO WASTE FLOW RATE MONITORED YES NO		
TYES NO ADEQUATE MAINTENANCE OF EMISSION CONTROL EQUIPMENT YES NO MONITORING PORTS IN INCINERATOR (Indicate Position) YES NO WASTE FLOW RATE MONITORED YES NO CUT-OFF DEVICE FUNCTIONING PROPERLY		
ADEQUATE MAINTENANCE OF EMISSION CONTROL EQUIPMENT YES NO MONITORING PORTS IN INCINERATOR (Indicate Position) YES NO WASTE FLOW RATE MONITORED YES NO CUT-OFF DEVICE FUNCTIONING PROPERLY YES NO		
ADEQUATE MAINTENANCE OF EMISSION CONTROL EQUIPMENT YES NO MONITORING PORTS IN INCINERATOR (Indicate Position) YES NO WASTE FLOW RATE MONITORED YES NO CUT-OFF DEVICE FUNCTIONING PROPERLY YES NO		
ADEQUATE MAINTENANCE OF EMISSION CONTROL EQUIPMENT YES NO MONITORING PORTS IN INCINERATOR (Indicate Position) YES NO WASTE FLOW RATE MONITORED YES NO CUT-OFF DEVICE FUNCTIONING PROPERLY YES NO STACK TEST 9a. EPA METHOD	9c. DATE	
ADEQUATE MAINTENANCE OF EMISSION CONTROL EQUIPMENT YES NO MONITORING PORTS IN INCINERATOR (Indicate Position) YES NO WASTE FLOW RATE MONITORED YES NO CUT-OFF DEVICE FUNCTIONING PROPERLY YES NO STACK TEST 98. EPA METHOD		
ADEQUATE MAINTENANCE OF EMISSION CONTROL EQUIPMENT YES NO MONITORING PORTS IN INCINERATOR (Indicate Position) YES NO WASTE FLOW RATE MONITORED YES NO CUT-OFF DEVICE FUNCTIONING PROPERLY YES NO STACK TEST YES NO AGENCY CONDUCTING TEST D. ADEQUATE METHOD FOR DISPOSAL OF SCRUBBER LIQUOR WASTEWATER (Described)	9c. DATE	
ADEQUATE MAINTENANCE OF EMISSION CONTROL EQUIPMENT YES NO MONITORING PORTS IN INCINERATOR (Indicate Position) YES NO WASTE FLOW RATE MONITORED YES NO CUT-OFF DEVICE FUNCTIONING PROPERLY YES NO STACK TEST YES NO AGENCY CONDUCTING TEST	9c. DATE	
ADEQUATE MAINTENANCE OF EMISSION CONTROL EQUIPMENT YES NO MONITORING PORTS IN INCINERATOR (Indicate Position) YES NO WASTE FLOW RATE MONITORED YES NO CUT-OFF DEVICE FUNCTIONING PROPERLY YES NO STACK TEST STACK TEST AGENCY CONDUCTING TEST D. ADEQUATE METHOD FOR DISPOSAL OF SCRUBBER LIQUOR WASTEWATER (Described yes) YES NO	9c. DATE	
ADEQUATE MAINTENANCE OF EMISSION CONTROL EQUIPMENT YES NO MONITORING PORTS IN INCINERATOR (Indicate Position) YES NO WASTE FLOW RATE MONITORED YES NO CUT-OFF DEVICE FUNCTIONING PROPERLY YES NO STACK TEST 9a. EPA METHOD AGENCY CONDUCTING TEST ADEQUATE METHOD FOR DISPOSAL OF SCRUBBER LIQUOR WASTEWATER (Describe New Yes) ADEQUATE METHOD FOR DISPOSAL OF ASH QUENCHING WASTEWATER OR ASH (Described) ADEQUATE METHOD FOR DISPOSAL OF ASH QUENCHING WASTEWATER OR ASH (Described)	9c. DATE	
ADEQUATE MAINTENANCE OF EMISSION CONTROL EQUIPMENT YES NO MONITORING PORTS IN INCINERATOR (Indicate Position) YES NO WASTE FLOW RATE MONITORED YES NO CUT-OFF DEVICE FUNCTIONING PROPERLY YES NO STACK TEST YES NO AGENCY CONDUCTING TEST D. ADEQUATE METHOD FOR DISPOSAL OF SCRUBBER LIQUOR WASTEWATER (Described of the property	9c. DATE	
ADEQUATE MAINTENANCE OF EMISSION CONTROL EQUIPMENT YES NO MONITORING PORTS IN INCINERATOR (Indicate Position) YES NO WASTE FLOW RATE MONITORED YES NO CUT-OFF DEVICE FUNCTIONING PROPERLY YES NO STACK TEST YES NO AGENCY CONDUCTING TEST D. ADEQUATE METHOD FOR DISPOSAL OF SCRUBBER LIQUOR WASTEWATER (Described of the property) YES NO 1. ADEQUATE METHOD FOR DISPOSAL OF ASH QUENCHING WASTEWATER OR ASH (Described of the property) YES NO	9c. DATE	
ADEQUATE MAINTENANCE OF EMISSION CONTROL EQUIPMENT YES NO MONITORING PORTS IN INCINERATOR (Indicate Position) YES NO WASTE FLOW RATE MONITORED YES NO CUT-OFF DEVICE FUNCTIONING PROPERLY YES NO STACK TEST STACK TEST OA AGENCY CONDUCTING TEST OA ADEQUATE METHOD FOR DISPOSAL OF SCRUBBER LIQUOR WASTEWATER (Describe New Yes) ADEQUATE METHOD FOR DISPOSAL OF ASH QUENCHING WASTEWATER OR ASH (Describe New Yes) 1. ADEQUATE METHOD FOR DISPOSAL OF ASH QUENCHING WASTEWATER OR ASH (Describe New Yes) YES NO 2. TYPE OF SCRUBBER MEDIUM	9c. DATE	
ADEQUATE MAINTENANCE OF EMISSION CONTROL EQUIPMENT YES NO MONITORING PORTS IN INCINERATOR (Indicate Position) YES NO WASTE FLOW RATE MONITORED YES NO CUT-OFF DEVICE FUNCTIONING PROPERLY YES NO STACK TEST YES NO AGENCY CONDUCTING TEST D. ADEQUATE METHOD FOR DISPOSAL OF SCRUBBER LIQUOR WASTEWATER (Described of the property	9c. DATE	
ADEQUATE MAINTENANCE OF EMISSION CONTROL EQUIPMENT YES NO MONITORING PORTS IN INCINERATOR (Indicate Position) YES NO WASTE FLOW RATE MONITORED YES NO CUT-OFF DEVICE FUNCTIONING PROPERLY YES NO STACK TEST STACK TEST OA AGENCY CONDUCTING TEST OA ADEQUATE METHOD FOR DISPOSAL OF SCRUBBER LIQUOR WASTEWATER (Describe No No No No No No No No No No No No No	gc. DATE	
ADEQUATE MAINTENANCE OF EMISSION CONTROL EQUIPMENT YES NO MONITORING PORTS IN INCINERATOR (Indicate Position) YES NO WASTE FLOW RATE MONITORED YES NO CUT-OFF DEVICE FUNCTIONING PROPERLY YES NO STACK TEST STACK TEST OA AGENCY CONDUCTING TEST OA ADEQUATE METHOD FOR DISPOSAL OF SCRUBBER LIQUOR WASTEWATER (Describe New Yes) ADEQUATE METHOD FOR DISPOSAL OF ASH QUENCHING WASTEWATER OR ASH (Describe New Yes) 1. ADEQUATE METHOD FOR DISPOSAL OF ASH QUENCHING WASTEWATER OR ASH (Describe New Yes) YES NO 2. TYPE OF SCRUBBER MEDIUM	gc. DATE	

15. OPACITY READING TAKEN	
YES NO VALUE:	
16. WET STACK	
YES NO	
17. STACK HEIGHT .	
·	
18. STACK DIAMETER	
19. CONSTRUCTION MATERIAL OF STACK	
•	
,	
20. PERMIT LIMITS	
	1
EMISSION LIMITS	
•	
	The state of the s
	The second secon
21. TYPE OF EQUIPMENT	
21a. MAKE	
21b. AGE	-
21c. CONDITION	
	-
	1
•	
n .	2.2.2.
, A	
	<u></u>
, ·	
•	1
	The second secon
	J
1	

STORAGE FACILITIES SITE INSPECTIO (Surplemental Report)	N REPORT		INSTRUCTIO Answer and Expass Necessary.	
1. STORAGE AREA PAS CONTINUOUS IMPERVIOUS BASE				
[] YES (L'NO 2. STORAGE AREA HAS A CONFINEMENT STRUCTURE				
2. STORAGE AREA HAS A CONFINEMENT STRUCTURE	•			10 Part 1 1
3. EVIDENCE OF LEAKAGE/OVERFLOW (II "Yes", document where an	d how much runo	(f is overflowing or leak	ine from containment)	
T YES NO				, and the second second second second second second second second second second second second second second se
÷			* =	
	·			
4. ESTIMATE TYPE AND NUMBER OF BARRELS/CONTAINERS		-11 1		
E CLASS OF BUASTIC CTODACT CONTAINED USED				
5. GLASS OR PLASTIC STORAGE CONTAINERS USED YES NO				747 1752 L 226 -
6. ESTIMATE NUMBER AND CAPACITY OF STORAGE TANKS				
OF ESTIMATE NUMBER AND CAPACITY OF STORAGE TANKS		Ĭ 		- 2
		1 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		
7. NOTE LABELING ON CONTAINERS				
		-		
		·		
	•			
				5.7
				•
		•		
8. EVIDENCE OF LEAKAGE CORROSION OR BULGING OF BARRELS/location and extent of damage. Take PHOTOGRAPHS)	CONTAINERS/S'	ORAGE TANKS (II''Ye	s", document evidence.	Describe
YES NO		-		
		- *		
		· L		
'		-	·	
			•	nery.
			-	
·		-	-	
9. DIRECT VENTING OF STORAGE TANKS				the water
YES NO				
10. CONTAINERS HOLDING INCOMPATIBLE SUBSTANCES (II "Yes", waste. Take PHOTOGRAPHS.)	document evidend	e. Describe location as	nd identity of hazardous	
TYES NO	-		of control to the control of the co	- 1 (1 Table 2)
·				. <u>2. T</u>
,			•	· 12 1.1
				-
11. INCOMPATIBLE SUBSTANCES STORED IN CLOSE PROXIMITY (IF	'Yes'', document	evidence. Describe lo	cation and identity of	· - -
hazardous waste. Take PHOTOGRAPHS.)				
	•			. • ···
		}		
12. ADEQUATE CONTAINER WASHING AND REUSE PRACTICES		7-		
YES NO				
13. ADEQUATE PRACTICES FOR DISPOSAL OF EMPTY STORAGE CO	NTAINERS			200 (100 m) 1 (100 m
YES NO				There is an arrange of the second of the sec
EPA Form T2070-3D (10-79)				

SURFACE IMPOUNDMENTS SITE INSPECTION REPORT (Supplemental Report)		INSTRUCTION Answer and Explain as Necessary.	
1. TYPE OF EXPOUNDMENT			
,			
2. STABILITY/CONDITION OF EMBANKMENTS		· .	-1
·	i H	-	
3. EVIDENCE OF SITE INSTABILITY (Erosion, Settling, Sink Holes, etc.)			4. 2
TYES TONO		-	The second secon
4. EVIDENCE OF DISPOSAL OF IGNITABLE OF REACTIVE WASTE	-		The supplied of the second of
5. ONLY COMPATIBLE WASTES ARE STORED OR DISPOSED OF IN THE IMPOUNDMEN	T		
E PECORDE CHECKED FOR CONTENTS AND LOCATION OF FACULTURE AND LOCATION	24517		
6. RECORDS CHECKED FOR CONTENTS AND LOCATION OF EACH SURFACE IMPOUN	UMENT	-	
	Y OF LINER SYSTEM	CHECKED	
TYES NO TYES	□ №		
7b. FINDINGS			-
8. SOIL STRUCTURE AND SUBSTRUCTURE			
	-		
9. MONITORING WELLS YES NO	= 5		-
10. LENGTH, WIDTH, AND DEPTH			<u></u>
LENGTH WIDTH DEPTH		•	
11. CALCULATED VOLUMETRIC CAPACITY		-	
12. PERCENT OF CAPACITY REMAINING			
		•	
13. ESTIMATE FREEBOARD			·
14. SOLIDS DEPOSITION			
[] YES [] NO			_ :
15. DREDGING DISPOSAL METHOD			
16. OTHER EQUIPMENT	· · · · · · · · · · · · · · · · · · ·	-	
	E 		•
	t :		
			salara i ta appar
		· •	. :
			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
			1. 11.11.71
		and a	्रमूग - प्रस्कृति
			* ** **
•			
		· .	· · · · · · · · · · · · · · · · · · ·
		٠.	
•			
•			3
			1 1 1 - 1 12일 (1 1911 - 11 11 11 11 11 11 11 11 11 11 11 11
EPA For T2070-2C (10.70)	1		

LANDFILLS SITE INSPECTION REPORT (Supplemental Report)	INSTRUCTION Answer and Explain as Necessary.
1. EVIDENCE OF SITE INSTABILITY (Erosion, Settling, Sink Holes, etc)	e de la companya del companya de la companya de la companya del companya de la co
2. EVIDENCE OF IMPROPER DISPOSAL OF BULK LIQUIDS, SEMI-SOLIDS AND SLUDGES	INTO THE LANGERS
YES PNO .	THIO THE LANDFILL
3. CHECK RECORDS OF CELL LOCATION AND CONTENTS AND BENCHMARK	
YES NO	
4. WASTES SURROUNDED BY SORBENT MATERIAL YES NO	
5. DIVERSION STRUCTURES ARE EFFECTIVELY CONSTRUCTED AND PROPERLY MAIN YES NO	NTAINED
6. EVIDENCE OF PONDING OF WATER ON SITE	
YES NO	en en en en en en en en en en en en en e
7. EVIDENCE OF IMPROPER/INADEQUATE DRAINING	
[] YES [] NO	
8. ADEQUATE LEACHATE COLLECTION SYSTEM (II "Yes", specify Type)	
YES NO	
8a. SURFACE LEACHATE SPRING	
YES , NO 9. RECORDS OF LEACHATE ANALYSIS	
YES NO	
10. GAS MONITORING	
YES NO	the second secon
11. GROUNDWATER MONITORING WELLS YES NO	
12. ARTIFICIAL MEMBRANE LINER INSTALLED	«
YES NO	
13. SPECIFIC CONTAINMENT MEASURES (Clay Bottom, Sides, etc)	,
YES NO 14. FIXATION (Stabilization) OF WASTE	
YES NO	100 cm 200
15. ADEQUATE CLOSURE OF INACTIVE PORTION OF FACILITY	
YES NO	<u>, every endough a la calledada a la</u>
16. COVER(Type)	
	~ ~
	· ·
	· · · · · · · · · · · · · · · · · · ·
16a. THICKNESS	
,16b. PERMEABILITY	, ·
	25
16c. DAILY APPLICATION Solids are dumped onto site	+ Spread when needed.
EPA Form T2070-3E (10-79)	



POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

REGION	SITE NUMBER (to be exeign
	ed by Ha)
IV	MEDDOODOOTA

GENERAL INSTRUCTIONS: Complete Sections I and III through XV of this form as completely as possible. Then use the information on this form to develop a Tentative Disposition (Section II). File this form in its entirety in the regional Hazardous Waste Log File. Be sure to include all appropriate Supplemental Reports in the file. Submit a copy of the forms to: U.S. Environmental Protection Agency; Site Tracking System; Hazardous Waste Enforcement Tack Force (EN-335); 401 M St., SW; Washington, DC 20460.

	I. SITE IDEN	TIFICATION		
A. SITE NAME		B. STREET (or	other identifier)	•
Reichhold		Reichh	iold Road	
C. CITY		D. STATE	E. ZIP CODE	F. COUNTY NAME
bultport		Miss.	39501	Harrison
G. SITE OPERATOR INFORMATION				2. TELEPHONE NUMBER
			1	Z. IELEPHONE NO
some as abou	ve			
3. STREET	4. CITY			S. STATE 6. ZIP CODE
H. REALTY OWNER INFORMATION (1)	different from operator of site)			
1. NAME				2. TELEPHONE NUMBER
3. CITY				4. STATE 8. ZIP CODE
		-		
I. SITE DESCRIPTION	Λ., ,	^ ,	,	
3.5 auto located	adjacent to	indust	rrial sea	wav.
J. TYPE OF OWNERSHIP	7)
1. FEDERAL 2. STAT	E 3. COUNTY	4. MUNICIPAL	5. PRIVAT	E .
	-		* ***.	
	II. TENTATIVE DISPOSITIO	N (complete thi	is section last)	
A. ESTIMATE DATE OF TENTATIVE			<u> </u>	•
DISPOSITION (mo., day, & yr.)	☐ 1. HIGH	<i>r</i>		4. NONE
			-	1
C. PREPARER INFORMATION		i		
1. NAME	1	2. TELEPHON	E NUMBER	3. DATE (mo., day, & yr.)
· -		881-2		8/6/80
180n W. Doyn	EY-		<u> </u>	8/6/80
A. PRINCIPAL INSPECTOR INFORMA	III. INSPECTION	1 INFORMATIO	N	
A. PRINCIPAL INSPECTOR INFORMA 1. NAME		2. TITLE	•	<u></u>
	_	1110.	\ :	Ţ
1. ORGANIZATION JOYN	'er '	[Litain	, de 010 di	4. TELEPHONE NO. (area code & no.)
S. ORGANIZATION	1 11 1 <	٠٠١ ' ﴿	,0,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	4. TELEPHONE NO Jares code is may
U.S. EPA U	N CONTROller	>1+es +	section 1	1881-9724
B. INSPECTION PARTICIPANTS				
1. NAME	2. ORGA	NIZATION		3. TELEPHONE NO.
				1
Vim Hardage	Miss. Div. ot	Solid U	Naste Mat.	601/982-6318
1. 1	21 11 /1	"	11 19	
Lisa Lowc				
		. !		
[(!	
C. SITE REPRESENTATIVES INTERV	UEWED (composes officials work	era, realdenta)		
=	ALEMED (Corporate officials, work			
I. NAME	2. TITLE & TELEPHONE NO).	3.	ADDRESS
	2. TITLE & TELEPHONE NO		•	ADDRESS
	2. TITLE & TELEPHONE NO		•	
. 0 11:	T			above
	2. TITLE & TELEPHONE NO		•	
	2. TITLE & TELEPHONE NO		•	19
	2. TITLE & TELEPHONE NO		•	
	2. TITLE & TELEPHONE NO		•	19
	2. TITLE & TELEPHONE NO		•	
	2. TITLE & TELEPHONE NO		•	19
	2. TITLE & TELEPHONE NO		•	19
	2. TITLE & TELEPHONE NO		•	19

Continued From Front		W. M.		- 18	
-		ECTION INFORMATION (co	ntinued)		
D. GENERATOR INFORMATION	/////////////////////////////////////	· 	······································	· · · · · · · · · · · · · · · · · · ·	. •
1. NAME	2. TELEPHONE NO.	3. ADDR	ESS	Hydroc	PE GENERATED
Reichhold Chem.		Gulfport N	liss.	resin	
		1000			
				<u>. L</u>	
E. TRANSPORTER/HAULER IN		3. ADDF		1	
1. NAME	2. TELEPHONE NO.	3. ADDF	(653	4.WASTETTP	ETRANSPORTED
F. IF WASTE IS PROCESSED O	· · · · · · · · · · · · · · · · · · ·	ED TO OTHER SITES, IDENT	3. ADDRESS	ITIES USED FOR I	DISPOSAL.
1. NAME	2. TELEPHONE NO.		3. AUDRESS	•	<u> </u>
				~	
					- ▼ <u></u>
		!		. ē	
G. DATE OF INSPECTION	H. TIME OF INSPECTIO	I. ACCESS GAINED BY: (cre	edentials must be show	n in all cases)	
(mo., day, & yr.) 7/30/80	2:10 pm	1. PERMISSION	2. WARRANT		
J. WEATHER (describe)	- 0				
partly cloud	14. 94 F	wind 5-10 m.	ph		
V /	11 11/	. SAMPLING INFORMATIO	N .		
A. Mark 'X' for the types of a etc. and estimate when the			ent e.g., regional la	o, other EPA lab,	contractor,
	2. SAMPLE			=	4. DATE
1. SAMPLE TYPE	TAKEN (mark'X')	3.5AMPL	E SENT TO:		RESULTS
a. GROUNDWATER					
b. SURFACE WATER	\	AD Laborator	VI ariana	Athens GA	4/20/20
		Abora (or	16001011	111111111111111111111111111111111111111	1/20/00
c. WASTE	\perp \mid X \mid \mid				
d. AIR					
. RUNOFF			•	= -	¥
				-	
f. spill					
g. \$01L					
6. 70.2		· · · · · · · · · · · · · · · · · · ·			
h. VEGETATION		•			
i. OTHER(specify)			7. 7. 1		
B. FIELD MEASUREMENTS TA	KEN (e.g., radioactivity, e	xplosivity, PH, etc.)			
1. TYPE	2. LOCATION	OF MEASUREMENTS		3.RESULTS	
					····

Continued From Page 2							
-	IV. SA	MPLING INFOR	MA	TION (continu	ed)		a
C. PHOTOS							
1. TYPE OF PHOTOS		2. PHOTOS IN	C	USTODY OF:			•
A. GROUND D. AER	RIAL	Mon	1	M, 20	YORY		
D. SITE MAPPED?					J		
TES. SPECIFY LOCATION O	OF MAPS:						
	AD FIL	Ę					· -
E. COORDINATES			•		· · · · · · · · · · · · · · · · · · ·		
1. LATITUDE (degminsec.)		1	2.	. LONGITUDE (degminsec.)	-	
30° 22" 0'				290	5" 3N'		
20 28 0		V. SITE INFO	<u></u>		77 70		
A. SITE STATUS		V. SITE INFO)KN	MATION			
	1		1 1				
1. ACTIVE (Those inductrial o	ed sites which i	TIVE (Those	ן ו	3. OTHER (Those sites the		ider	its like "midnight dumping"
for waste treatment, storage, or dis	posal wastes.)		,	where no regula			the site for waste disposal
on a continuing basis, even if infre quently.)	-			has occurred.)			
4.5,			L		-		
B. IS GENERATOR ON SITE?							,
☐ 1. NO ☐ 2. YES(specific points)	ecify generator's for	ır-digit SIC Code):				, , , , , , , , , , , , , , , , , , , ,	
ì		_					
C. AREA OF SITE (in acres)	D. ARE THE	RE BUILDINGS O	N ·	THE SITE?			-
Actual disposal	1. №	2. YES(s	nec	ifv):			
site = 3,5 acro							
2 2,0 2010	377	DACTERIZATIO	<u> </u>	OF SITE ACT	WITY		
Indicate the major site activity(i		RACTERIZATIO				nri	ate hoves
Indicate the major site activity(if	Tool	lating to each ac	LIV	ity by marking	A in the appro	Pris	ite boxes.
A. TRANSPORTER	B. 57	ORER	Ĥ	C. TR	EATER	Ĥ	D. DISPOSER
					1.	\	
1.RAIL	1.PILE	*	Щ	1. FILTRATIO	 	K	1. LANDFILL
2. SHIP	2. SURFACE IM	POUNDMENT	Щ	2. INCINERAT	 	1;	2. LANDFARM
3. BARGE	3. DRUMS			3. VOLUME RE			3. OPEN DUMP
4. TRUCK	4. TANK, ABO	E GROUND		4.RECYCLING	RECOVERY		4. SURFACE IMPOUNDMENT
5. PIPELINE	5. TANK, BELO	W GROUND		5. CHEM./PHY	S./TREATMENT		5. MIDNIGHT DUMPING
6.OTHER(specify):	6. OTHER(spec	ify):		6. BIOLOGICA	L TREATMENT		6. INCINERATION
				7. WASTE OIL	REPROCESSING		7. UNDERGROUND INJECTION
ł				8.SOLVENT R	ECOVERY		8.OTHER(specify):
ł			X	9.OTHER(spe	cify):	Γ	-
				il rockav	mation		
			0	iil reclau oil skim	mina		
			۲ د	711 5 NIM	12)		
						1	
E. SUPPLEMENTAL REPORTS: IF	the site falls within	any of the creego	rie	s listed below,	Supplemental Repo	rts :	must be completed. Indicate
which Supplemental Reports you i				•			
1. STORAGE	2. INCINERATION	3. LANDFIL	,	r sur	FACE CUNDMENT) e	DEEP WELL
	EL INGINERATION	CALL EVIDER		IMP	OUNDMENT L	J 9.	ar to to F 17 to to to
CHEM/BIO/	T LANDEADH	8. OPEN DU	184		NEBOBTED -	7	DECYCLOB/DECLAMED
- 6. PHYS TREATMENT - 7	7. LANDFARM				NSPORTER	J 10	RECYCLOR/RECLAIMER
	VII.	WASTE RELAT	ED	INFORMATIO	ОИ		
A. WASTE TYPE							
1. LIQUID X	2. SOLID	🔲 3. SLUDGE		4. GAS	5		
8. WASTE CHARACTERISTICS		**************************************	_				
1. CORROSIVE	2. IGNITABLE	3. RADIOAC	CTI	VE . 4. HIG	HLY VOLATILE		-
	6. REACTIVE	7. INERT			AMMABLE		·
		4		٠٠, ٢٠,			·
13 9. OTHER (specify): 510	ahthu ca	stuble -		some.	solvent.		
C. WASTE CATEGORIES	1			<u> </u>			
1. Are records of wastes available?	Specify items such	n as manifests, inv	/en	tories, etc. belo		٠.	
ł							
		an week to t					
EPA Form T2070-3 (10-79)		PAGE	3 0)F 10			Continue On Reverse

Continued From From	t (1)			•	M. Sont Carp 1
		. WASTE RELATED IN			
2. Estimate the amou	int (specify unit of me	asure) of waste by cate	gory; mark 'X' to indic	ate which wastes are p	
a. SLUDGE	b. OIL	c. SOLVENTS	d. CHEMICALS	e, SOLIDS	f. OTHER
AMOUNT	AMOUNT	AMOUNT	AMOUNT	AMOUNT	AMOUNT
	<u> </u>			12,000-15,000	
UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	NOS dou	UNIT OF MEASURE
PAINT,	(1) OILY	(1) HALOGENATED	(1) ACIDS	(I) FLYASH	(1) LABORATORY, PHARMACEUT.
(2) METALS SLUDGES	(2) OTHER(specify):	(2) NON-HALOGNTD.	(2) PICKLING LIQUORS	(2) ASBESTOS	(2) HOSPITAL.
(3) POTW		(3) OTHER(epecify):	(3) CAUSTICS	(3) MILLING/MINE TAILINGS	(3) RADIOACTIVE
(4) ALUMINUM SLUDGE			(4) PESTICIDES	(4) FERROUS SMELT-	(4) MUNICIPAL
(5) OTHER(specify):			(5) DYES/INKS	(5) NON-FERROUS SMLTG. WASTES	(5) OTHER(specify):
			(6) CYANIDE	XI (6) OTHER (specify): Hydro carbon Resi	ns
			(7) PHENOLS	, ,, esp	vents
			(8) HALOGENS	oi oi	15
			(9) PCB	" oi spent Alcy (no filter aid (die	ton control
	,				ctore, earlier)
	-		(11) OTHER(specify)		
D LIST SHEETANCES	OF GREATEST CONCE	RN WHICH ARE ON THE	ITE (place in descending	s order of harred)	L
Di Eloi oddor Angeo	T OKENTEST CONCE		TOXICITY	3 0142. 01.1424.4)	
1. SUBST	NCF -	(mark 'X') (mark 'X')	AS NUMBER 5. A	AMOUNT 6. UNIT
	~ .	SO- b. c.VA a.	b. c. d. WED. LOW NONE		
xylene					
toluene					
benzeno ethylben					
nth . I low					
61100	Long				
7					

		VIII. HAZARD	DESCRIPTION		
FIELD EVALUATION hazard in the space p		TION: Place an 'X' in	the box to indicate tha	t the listed hazard exis	sts. Describe the
A. HUMAN HEAL		<u>.</u>			
			,	` ,	
				•	
			-		
		•	•		

vm. HAZARD DESCRIPTION (continued)		
B. NON-WORKER INJURY/EXPOSURE		<u> </u>
	*/ ==	
	В.	
		- [
	·	
		l
·	·*	
C. WORKER INJURY/EXPOSURE		
		1
,		
D. CONTAMINATION OF WATER SUPPLY		
		ļ
	· ·	
_ E. CONTAMINATION OF FOOD CHAIN		- ,
	•	
	•	
	•	
F. CONTAMINATION OF GROUND WATER	Λ	
chances for contamination of aquifer	immediately under	ning
site aire high.		v
	Sec. 1	l
	•	
G. CONTAMINATION OF SURFACE WATER	· · ·	
leaching from the discording area i	's ocurring	
todescribed flows file driamonal mine in	the industrial	į
on the South end of the site into		-
leaching from the disposal area is on the South end of the site into	en en en en en en en en en en en en en e	7
on the south end of the site into seaway.	**************************************	
	· · · · · · · · · · · · · · · · · · ·	
	Continue C	

Continued From Front		
	VIII. HAZARD DESCRIPTION (continued)	
H. DAMAGE TO FLORA/FAUNA		
		ì
·		'
		·
		•
		•
I. FISH KILL		
i. rish kitt	•	
	•	*
,		
		<u>.</u>
J. CONTAMINATION OF AIR		·
	The second secon	
	. \	
K. NOTICEABLE ODORS		
Υ '		
		, in the second
		·
		-
•		
C. CONTAMINATION OF SOIL		
	•	-
	•	
		·
M. PROPERTY DAMAGE		
		=
•	*	:
		* *
		,
	•	÷
		-
	,	

	HAZARD DESCRIPTION (contin		
N. FIRE OR EXPLOSION	-	•	-
			-
•			
		. •	
		·	
			_
O. SPILLS/LEAKING CONTAINERS/RUNOFF/S	TANDING LIQUID		٠
		•	
	-		
			-
	, ,		
P. SEWER, STORM DRAIN PROBLEMS	and the second s	• • •	
	The state of the s		
	- · · · · · · · · · · · · · · · · · · ·		-
Q. EROSION PROBLEMS		<u> </u>	
Q. EROSION PROBLEMS		· · · · · · · · · · · · · · · · · · ·	
	i. Bu		
	The state of the s		
•			
R. INADEQUATE SECURITY			
•			
	l l t		
		•	
S. INCOMPATIBLE WASTES			
	,		- *
		•	
		* <u> </u>	
			-
		· ·	
		·	

		VIII. HAZARD DES	CRIPTION (continued)			
T. MIDNIGHT DUMPING			ř			·
					•	
			•			
<u>}</u>					•	
1 1 1					•	
U. OTHER (specify):				•		
			ı			
					•	
	•				•	
			•			
					•	
. .						
		~	÷ :		\	-
			1			
·	~					-
,						
•						
	IX. F	POPULATION DIRE	CTLY AFFECTED BY S	ITE		1
A. LOCATION OF POPULATION		APPROX. NO. OPLE AFFECTED	C. APPROX. NO. OF PEC AFFECTED WITHIN UNIT AREA		D. APPROX. NO. OF BUILDINGS AFFECTED	E. DISTANCE TO SITE (specify units)
1. IN RESIDENTIAL AREAS						
2. IN COMMERCIAL OR INDUSTRIAL AREAS						
3. TRAVELLED AREAS		·				
4. PUBLIC USE AREAS 4. (parks, schools, etc.)						
A. DEPTH. TO GROUNDWATER(epeci	fy unit)	X. WATER AND B. DIRECTION OF F	ND HYDROLOGICAL DA		ROUNDWATER USE IN	VICINITY
215-20 at mos	t '	Northwa	^	3. 3		. / •
D. POTENTIAL YIELD OF AQUIFER		E. DISTANCE TO DE (specify unit of me	NINKING WATER SUPPLY	F. DI	RECTION TO DRINKII	NG WATER SUPPLY
G. TYPE OF DRINKING WATER SUP	PLY	L		<u> </u>		
1. NON-COMMUNITY	2. COMMU > 15 CC	NITY (specify town): ONNECTIONS -				
3. SURFACE WATER	4. WELL		•		1	
EPA Form T2070-3 (10-79)		PAC	SE 8 OF 10		Contin	ue On Page 9

Continued From	Page 8					
		X. WATER AND HYDROLOGIC		ontinued)		
H. LIST ALL DRIN	KING WATER WE	LLS WITHIN A 1/4 MILE RADIUS OF SI	TE			
1. WELL	2. DEPTH (specify unit)	3. LC (proximity to po	OCATION pulation/buildi	nge)	NON-COM- MUNITY (mark 'X')	COMMUN- ITY (mark 'X')
Reiohhold Co. Well	570'	Well located or	Reid	nhold property	X	
					 	
					ļ	
					1	
				,		
I. RECEIVING WA	TER				<u> </u>	L
1. NAME			3. STREAMS			1
Industrial	Seaway	4. LAKES/RESERVOIRS	5. OTHER (pocity): coastal	water	wav
6. SPECIFY USE	AND CLASSIFICA	TION OF RECEIVING WATERS				
shipping	3 strong	sportation etc.				•
1.0547109.05.61	75 IS IN.	XI. SOIL AND VEGIT	ATION DAT	\		
LOCATION OF SI		B. KARST ZONE	C. 100 Y	EAR FLOOD PLAIN	D. WETLAND	
T a pecu	ATED FLOODWAY	F. CRITICAL HABITAT	C G RECH	ARGE ZONE OR SOLE SOUP	RCE AOUIFER	• •
E. A REGOL	ATED FLOODWA	- XII. TYPE OF GEOLOGICAL			102 //40// 2//	-
Mark 'X' to indic	cate the type(s) o	f geological material observed and s			parts.	
A. CVERBUF	RDEN	B. BEDROCK (specify below)	İx'	C. OTHER (ep	cify below)	
1. SAND						
2. CLAY					-	
3. GRAVEL						·
		XIII. SOIL PERM	EABILITY			
A. UNKNOWN	1	B. VERY HIGH (100,000 to 1	000 cm/sec.)	C. HIGH (1000 to 10 c	m/sec.)	
<u> </u>	E (10 to .1 cm/sec		ood cally decay	F. VERY LOW (.001 t	-	ec.)
G. RECHARGE AR		COMMENTS.				
H. DISCHARGE AF		COMMENTS:			······································	
1. YES	2. NO 3.	COMMENTS:				- ,-=
1. ESTIMATE % O	F SLOPE 2.	SPECIFY DIRECTION OF SLOPE, CON	^	OPE, ETC.	· ·	
J. OTHER GEOLO		Dir. of slope North	nword.			
		,				
			; ; ;			
1						

PAGE 9 OF 10

Continue On Reverse

EPA Form T2070-3 (10-79)

Continued From From	ود ۱۳۰۰ و پیچ ک بسیان از پیداد	XIV. PERMIT INFO				بورجها بالله اليهي	
List all applicable permits h	eld by the site and	i provide the related info	rmation.				
A. PERMIT TYPE	B. ISSUING	C. PERMIT	D. DATE	E. EXPIRATION DATE		COMPLI)
(o.g., RCRA, State, NPDES, otc.)	AGENCY	NUMBER	(mo.,dey,&yr.)	(mos,day,&yrs)	1. YES	2. NO	3. UN- KNOWN
MPDES	U.S. EPA	MS 000 1520	6/28/74	3/31/79			X
•	r *						
		,					
•		:					
	XV. PAST	 REGULATORY OR EN	FORCEMENT AC	TIONS			
NONE YES (summ	marize in this apace)	·····			,, , , ,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,		
		:-			-		
		•					
						a"	1 #
		•				ana -	= .
			•	1			
		-	-			·=	٦.
		,				•	-
					:		
							-
NOTE: Lased on the info	ormation in Secti	ons III through XV, fil	I out the Tentat	ive Disposition (Section	II) info	mation
EPA Form T2070-3 (10-79)		PAGE 1	0 OF 10				

LANDFILLS SITE INSPECTION REPORT (Supplemental Report)	INSTRUCTION Answer and Explain as Necessary.	n
1. EVIDENCE OF SITE INSTABILITY (Eronion, Settling, Sink Holes, etc.)		
LA YES	Σ Σ'	· T. F. gr
2. EVIDENCE OF IMPROPER DISPOSAL OF BULK LIQUIDS, SEMI-SOLIDS AND SLUDG	ES INTO THE LANDFILL	-
YES NO		
3. CHECK RECORDS OF CELL LOCATION AND CONTENTS AND BENCHMARK		
YES NO		
4. WASTES SURROUNDED BY SORBENT MATERIAL		- , .
YES [NO		• . •
L		·
5. DIVERSION STRUCTURES ARE EFFECTIVELY CONSTRUCTED AND PROPERLY M.	AINTAINED	±
6. EVIDENCE OF PONDING OF WATER ON SITE		
YES [], NO		
[2], [3]		: •
7. EVIDENCE OF IMPROPER/INADEQUATE DRAINING		
YES NO.	A series and a ser	
8. ADEQUATE LEACHARE COLLECTION SYSTEM (If "Yes", specify Type)	<u> </u>	<u> </u>
YES NO	-	
Name of Basin 1	-	.i.
8a. SURFACE L-PACHATE SPRING		
DIES [1 NO leachate flow noted at	out crop on waterwar	
9. RECORDS OF LEACHATE ANALYSIS	7 - 2 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3	1
YES NO		
10. GAS MONITORING		4. · 4. · . 4.
TYES TNO		
11. GROUNDWATER MONTORING WELLS	 	
YES NO		- 'Gar
12. ARTIFICIAL MEMBRANE LINER INSTALLED		rege d. Tr
LI YES (TNO		
13. SPECIFIC CONTAINMENT MEASURES (Clay Bottom, Sides, etc.)		
[] YES [TNO		
14. FIXATION (Stabilization) OF WASTE		
YES NO		· Januari
15. ADEQUATE CLOSURE OF INACTIVE PORTION OF FACILITY		<u> </u>
YES NO		**
16. COVER(Type)		
		1
	•	
	<u> </u>	فيدي المالية
16a. THICKNESS		. <u> </u>
	1	
	t I	
16b. PERMEABILITY		
		: e*
		· **
	596727	
4 DAUG ADDU GATION]	- 4-7- - 17- 17- 17- 17- 17- 17- 17- 17- 17- 17
16c. DALLY APPLICATION		
YES NO	1	
	-	
EPA Form T2070-3E (10-79)		

GROUNDWATER MONITORING NETWORK, AND PRELIMINARY CONTAMINATION ASSESSMENT REICHHOLD CHEMICALS, INC.
GULFPORT, MISSISSIPPI

by

CH2M HILL 807 South McDonough Street Montgomery, Alabama 36104

MG17621.BO

May, 1984

TABLE OF CONTENTS

		-	D = ~ 0
			Page
INTRO	DUCTION	 	1
FIELD	INVESTIGATION PROCEDURES		3
1	Soil Borings Well Installation Sampling		3 6 9
SITE	HYDROGEOLOGY		10
PRELI	MINARY CONTAMINATION ASSESSMEN	 I	14
CONCL	USIONS		18
TABLE			
1	Soil Sample pH and TOC fr Borings	om Exploration	5
2	Summary of Well Construct	ion Data	7
3	Summary of Analytical Dat Solids, Embankment, Leach and Fresh Filter Cake		- 15
4	Summary of Analytical Dat Samples from Monitoring W		16
FIGUR	LE		
1	Map showing location of R Inc. Facility, Gulfport,		2
2	Map showing boring and we	ll locations	4
3	Typical well construction	diagram	8
4	Hydrogeologic cross secti across plant site	on, north to south	11
5	Map showing groundwater g		13

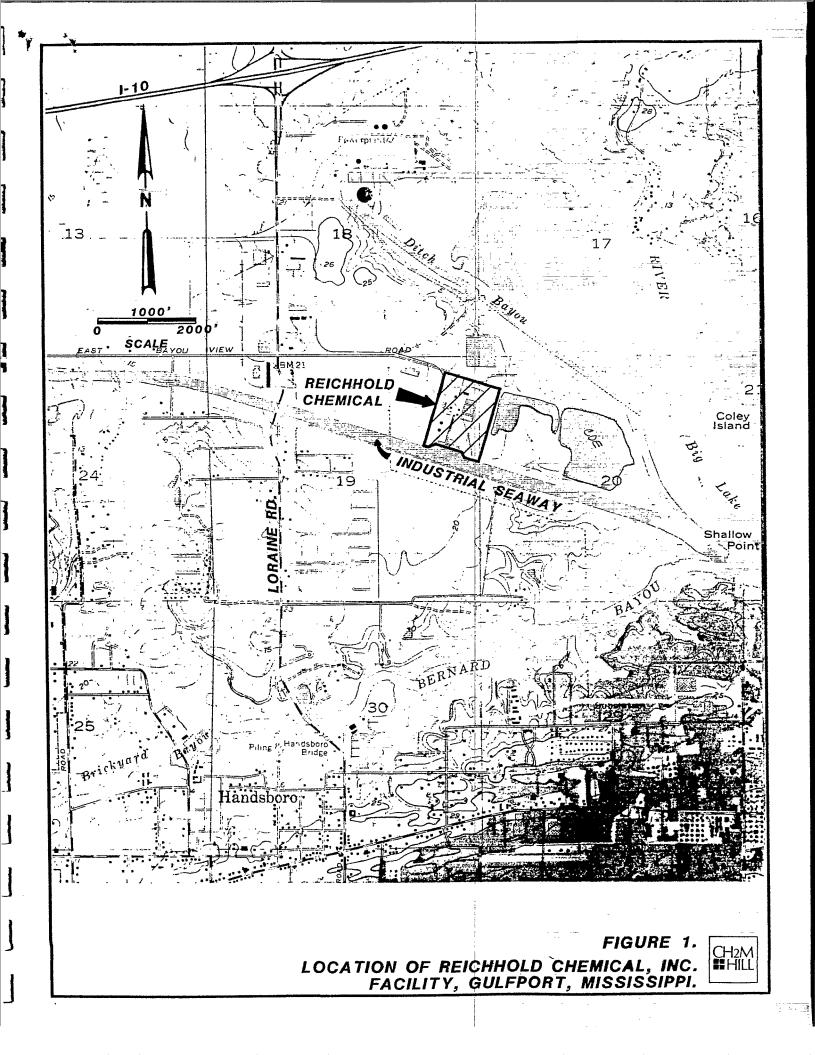
GROUNDWATER MONITORING NETWORK, AND PRELIMINARY CONTAMINATION ASSESSMENT REICHHOLD CHEMICALS, INC. GULFPORT, MISSISSIPPI

INTRODUCTION

On March 26, 1984, CH2M HILL was authorized to conduct a groundwater investigation at the Reichhold Chemical Plant in Gulfport, Mississippi. Purposes of the investigation were to attempt to determine the source of leachate discharging on the canal embankment (Industrial Seaway) and secondly to determine if vertical migration of leachate was occurring. This was to be accomplished by the following tasks:

- 1. Drill exploratory soil borings to establish the geologic framework, identify permeable zones to set monitor wells in, and collect soil samples for chemical and physical analyses.
- 2. Construct monitor wells to provide data on groundwater flow and quality with a minimum of one upgradient and three downgradient wells in the vicinity of the landfill.
- 3. Measure water levels in monitor wells to determine groundwater gradients and flow directions.
- 4. Collect water samples from monitor wells and analyze samples for organic compounds found in the leachate discharging to the Industrial Seaway.

The plant site is located about 1.3 mi. south of Interstate 10 and about 0.75 mi. east of Loraine Road in Gulfport, Mississippi, (Figure 1). Groundwater investigation of the site was prompted by the observation of a leachate seep occurring along the embankment of the Industrial Seaway in



the vicinity of the barge docks. This specific seep was the largest of several along the embankment and occurred at the outcrop of a sand/clay interface. Previous analyses of the leachate (water and oil phases), landfill solids, filter cake, and impoundment basin solids are included in Appendix A of this report.

FIELD INVESTIGATION PROCEDURES

Soil Borings

Figure 2 shows the location of seven soil borings drilled to depths ranging from 16.5 to 96.5 ft. Boring B-1 was drilled by the hollow-stem auger method. However, to improve monitor well integrity, all further borings were drilled by the mud rotary method. Boring B-ld was sampled continuously to a depth of 36 ft using a split spoon sampler with two undisturbed samples collected using a thin-wall tube sam-The undisturbed samples were collected in fine-grained low permeability zones and analyzed for grain size and permeability. Boring B-6s was sampled continuously to a depth of 16.5 ft. All other borings were sampled at 5-ft. intervals. Soil samples were collected from each permeable zone and analyzed for total organic carbon (TOC) and pH. TOC and pH data are summarized in Table 1. data is largely inconclusive probably due to naturally occurring organic materials. An example of this can be seen in the high soil TOC value from boring B-1d, which is due to humic material in the soil. Boring logs are contained in Appendix B of this report.

Soil samples were retained in glass jars with an aluminum foil seal. After samples had been sealed for at least an hour, sample headspace analyses of organic vapors were measured with an HNu photoionization

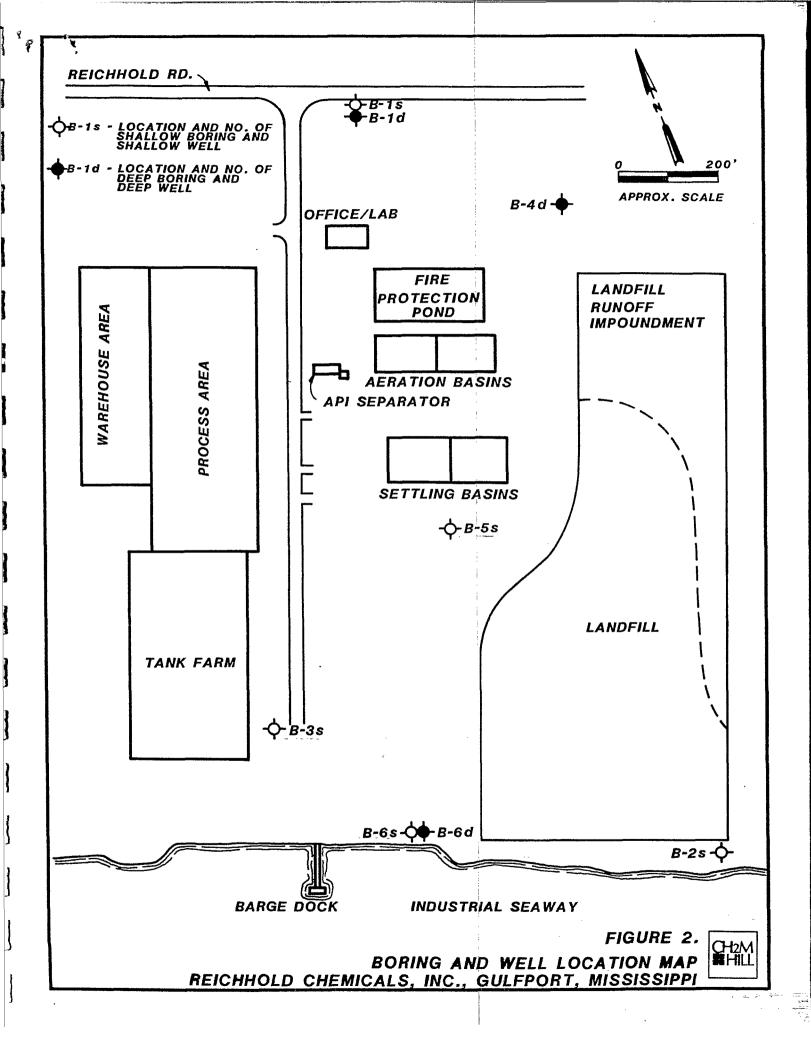


Table 1. Soil Sample pH and TOC from Exploratory Borings at Reichhold Chemicals, inc., Gulfport, Mississippi

Boring No.	Soil Sample Depth (Ft Blw Land) Surface	_ рн	TOC (ppm)
B-1d	0- 2	4.75	4480
	34-36	5.75	170
B-2s	5-6.5	4.90	770
B-3s	10-11.5	4.90	350
B-4d	5-6.5	8.25	270
	45-46.5	6.15	77
	50-51.5	5.20	55
B - 5s	0-1.5	4.10	3060
	5-6.5	4.40	2860
	10-11.5	4.90	420
	15-16.5	3.60	2570
B-6s	10-12	3.70	250
B-6d	20-21.5	5.50	320
	85-86.5	6.80	170
	90-91.5	6.70	170

jd/BG/033

detector reading in benzene equivalents. This instrument was also utilized to monitor air quality during drilling.

Soil samples from borings B-2s, B-3s, B-5s, and B-6s showed obvious signs of organic contamination, such as high organic vapor values (headspace concentrations up to 500 ppm) during drilling and an oil sheen on the drilling mud. To avoid potential cross contamination, these borings were terminated at the contact of the first low permeability sediment. Boring B-6d was drilled to a greater depth to evaluate potential for vertical migration after permanently installing an 8-in. surface casing into the low permeability clay.

Well Installation

Monitor wells were installed in each boring and an additional shallow well was installed in a wash boring adjacent to B-1, for a total of eight wells. A summary of well construction data is given in Table 2. A typical well construction diagram is presented in Figure 3. Individual well construction diagrams are included in Appendix C. numbers ending with the letter "s" are screened in the shallow (surficial) aguifer and are 15.0 ft. or less in Well numbers ending with the letter "d" are screened in the first permeable zone beneath the first clay. wells range from 35 to 92.5 ft. deep. Five wells screened in the surficial aquifer include B-1s, B-2s, B-3s, B-5s, and B-6s. Three wells screened beneath the first clay include B-1d, B-4d, and B-6d.

All wells were constructed with 2-in. ID, Schedule 40 PVC casing and slotted (.01-in) screen. Pipe joints were threaded and flush with o-ring seals except for Well B-ls which was constructed with non-cemented slip couplings.

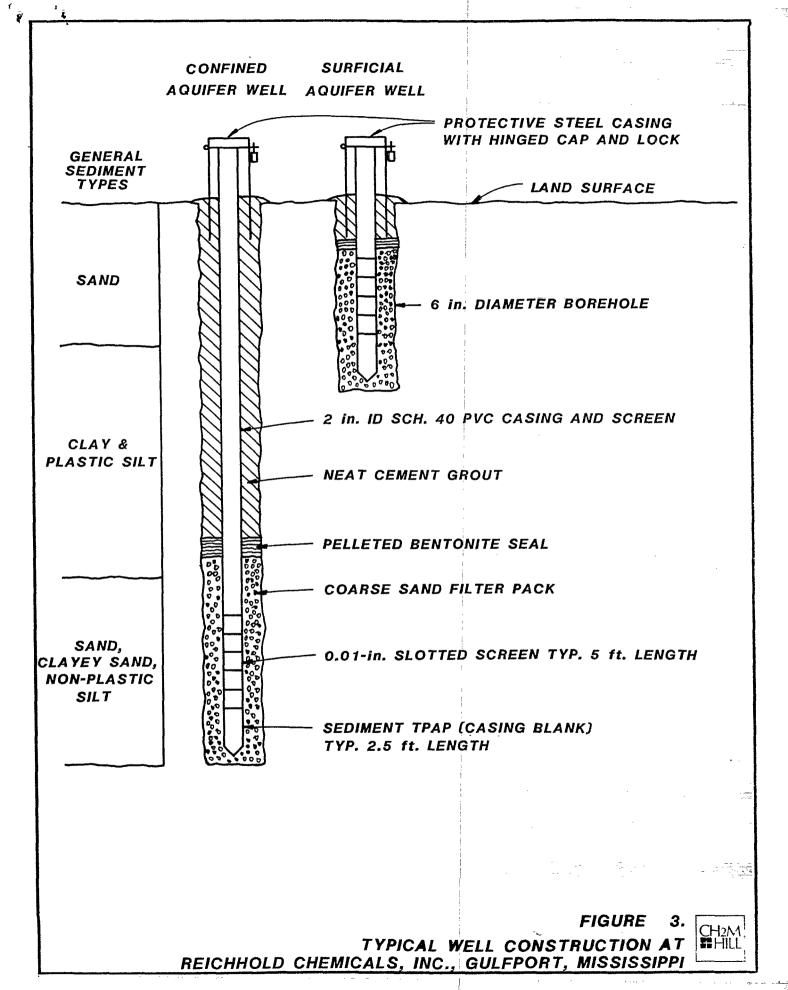
Table 2. Summary of Well Construction Data Reichhold Chemical, Inc., Gulfport, Mississippi

Well No.	Land Surface Elev (ft-MSL)	Total Depth Below MP (ft)	Top of PVC Elev (ft-MSL)	Casing Steel Elev (ft-MSL)	Top of Screen Elev (ft-MSL)	Screen Length (ft)
B-1s	15.72	10.0	18.24	18.54	13.2	3
B-1d	15.82	40.0	18.18	18.32	-16.7	5
B-2s	17.26	17.5	20.06	20.30	7.3	5
B-3s	20.30	17.5	22.77	23.01	7.8	5
B-4d	16.11	55.0	18.40	18.79	_y -31.4	5
B-5s	19.97	17.5	22.91	22.94	10.0	. 5
B-6s	21.18	17.5	23.98	24.03	11.2	5
B-6d	21.14	97.5	24.07	24.15	-63.9	10

NOTES:

- 1. All wells 2-in ID, sch 40 PVC.
- 2. MP = Measuring Point = Top of PVC casing.
- 3. Screen Slot = 0.01-IN

jd/BG/033



Annular materials included a coarse sand pack around the screen, bentonite pellet seal above the sand pack, and neat cement grout to surface. Protective steel casings (5-ft. length) with locking hinged caps were set in the grout. Wells B-1d and B-4d were developed by air-lift techniques, however, due to the low producing capabilities of these wells, the method was discontinued. Remaining wells were flushed with potable water to remove excess sediment and then pumped until discharge cleared. Due to the amount of clay and silt in the screened horizons, these wells should be pumped further to remove fine sediment from the vicinity of the screen.

Sampling Procedures

All wells installed during the investigation were sampled and water samples were analyzed by gas chromatography/mass spectrometer (GC/MS) for organic compounds including volatile, acid extractable, and base/neutral extractable fractions. Other parameters included pH, conductivity, total Kjeldahl nitrogen (TKN), and total organic carbon Sampling procedures including purging of the well to draw in formation water and sampling with a teflon bailer. Wells were purged of a minimum of three well volumes and until discharge cleared of suspended sediment. wells (surficial aquifer) were pumped by a peristaltic pump with Tygon tubing. Tubing was discarded after sampling the highly contaminated wells (B-3s, B-5s, B-6s). Deep wells were purged with a submersible bladder-type pump actuated with compressed air. Sampling bailers were decontaminated with methanol and organic-free water prior to sampling each Samples were iced immediately after sampling and transported to the CH2M HILL lab in Montgomery, Alabama.

SITE HYDROGEOLOGY

The hydrogeologic framework of the site is illustrated on Figure 4, which is a north to south oriented cross section. Note that correlations on the cross section are based on major changes in lithology and relative permeability and may not conform to regional geologic formations. The site is underlain by a thin layer of sand, about 10 ft. thick. Beneath the sand is a relatively thick (19-56 ft.) layer of clays and plastic silts. This layer increases in thickness to the south and is consistently clay at the top with increasing silt content with depth. The clay at the top of this unit outcrops on the Industrial Seaway embankment. soil samples were collected from this layer in boring B-1 and were analyzed for grain size and permeability. Data sheets for these samples are included in Appendix B. Permeability values of the two clay samples were 4.23 x 10^{-7} and 5.49 x 10^{-7} cm/sec. Beneath the clay and plastic silt layer is a more permeable zone of sand, clayey sand, and non-plastic silt. The top of this unit ranges from -10 ft MSL at the north side of the site to -50 ft MSL at the southern end of the site. Thickness of this unit is unknown, however clays were encountered at borings B-4 and B-6 at elevations of -45 ft and -75 ft MSL possibly indicating the base of the unit.

Two permeable zones were identified from the exploratory borings which included the surficial sands and the sand and silt zone occurring beneath the low permeability clay and silt zone. Two aquifer designations will be used for the purpose of this report, surficial aquifer and shallow confined aquifer. The top of the surficial aquifer is the water table surface or zone of saturation surface which will fluctuate with natural recharge from rainfall and artificial recharge from surface impoundments. The base of the

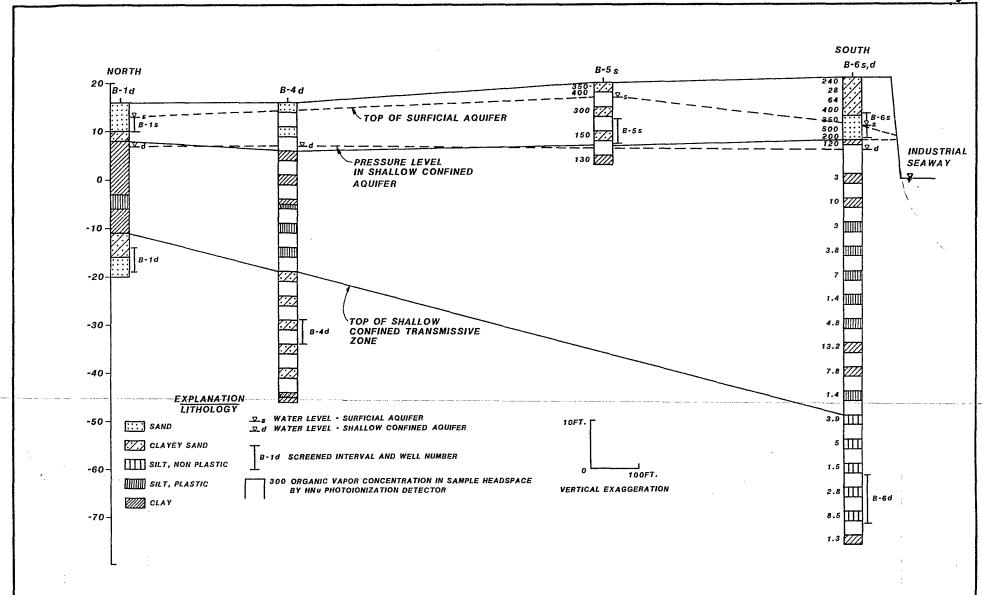


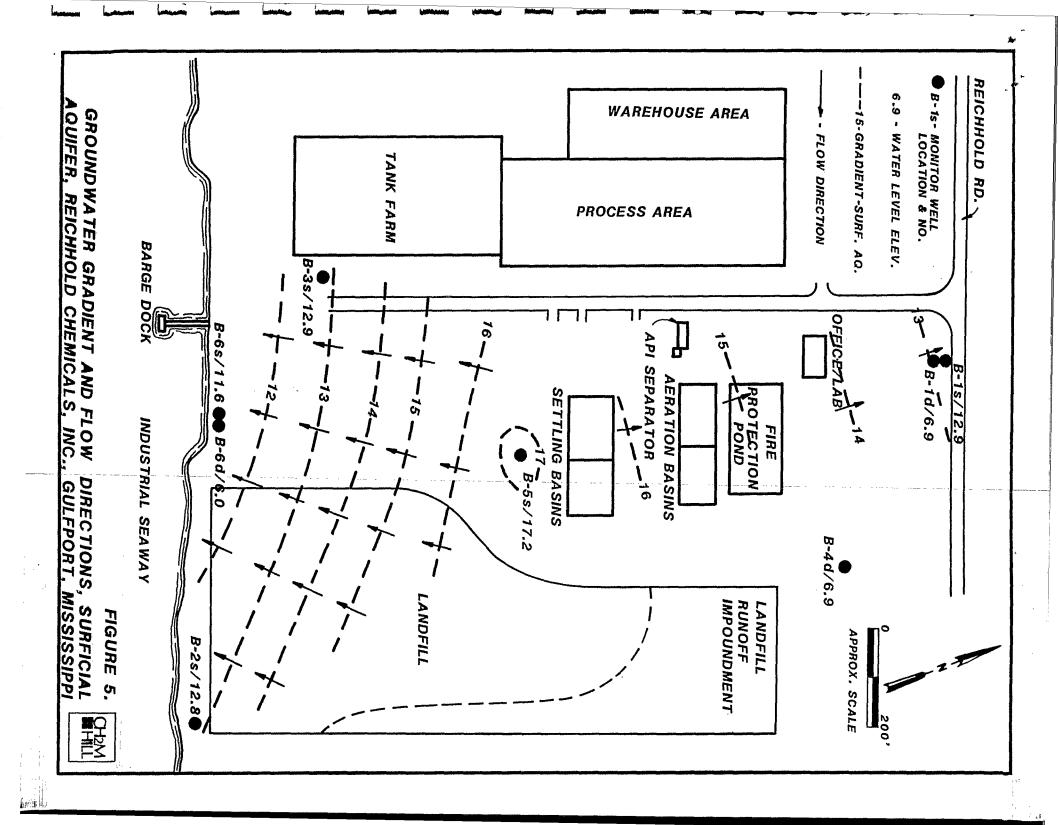
FIGURE 4. (HAN)
HYDROGEOLOGIC CROSS SECTION, NORTH TO SOUTH, REICHHOLD CHEMICAL, GULFPORT, MISSISSIPPI.

surficial aquifer is the sand/clay interface occurring almost uniformly at +8 ft MSL. The aquifer discharges to the Industrial Seaway via surface seepage along the embankment.

Flow in the surficial aquifer can be estimated from groundwater gradients (top of the aquifer) as shown in Figure 5. Generalized contours are presented for the gradient in the surficial aquifer based on water surface elevations in the 5 shallow wells. It can be seen in Figure 5 that the top of the surficial aquifer ranges from a high of +17.2 ft MSL near the center of the site to +11.6 ft This configuration suggests mounding of MSL near the canal. the water table probably from induced recharge from surface impoundments creating flow both to the north and south-southwest. Surface impoundments in this area that may effect the water table include the landfill runoff impoundment, earth-bottomed fire protection pond and the earth-bottomed aeration basins.

From this contour map it can be seen that no shallow wells are upgradient of the landfill and that all wells are downgradient of the landfill or other plant facilities. Groundwater flow in the surficial aquifer in the northern part of the site is far more complex than indicated on Figure 5 and will be greatly impacted by the landfill runoff impoundment, fire protection pond, aeration basins and surface drainage ditches (not shown on Figure 5). Detailed mapping in this area is beyond the scope of this investigation. Data necessary to improve groundwater gradient mapping in this area would include surface water and impoundment surveying and additional shallow wells.

The lower aquifer at the site is the shallow confined aquifer, the top of which occurs a -10 ft MSL on the north side of the site and -50 ft MSL at the south side of the



site. This is the first permeable zone beneath the low permeability clays and plastic silts. This aquifer is confined meaning that the water level in a well penetrating the aquifer will rise above the top of the aquifer. The potentiometric surface of this aquifer is the pressure level in the aquifer and is determined from water level elevations in the deep wells.

The water level elevations in the deep wells are presented in Figure 5, however, no contours are presented due to the limited number of data points. The three data points indicate a very slight gradient to south. Wells B-1d and B-4d are upgradient of most plant facilities including the landfill and well B-6d is downgradient.

PRELIMINARY CONTAMINATION ASSESSMENT

Analytical data sheets from water samples collected from wells during this investigation are included in Appendix A of this report. Table 3 is a summary of organic compounds found in the landfill solids, canal embankment leachate, organic (oil) fraction of leachate and fresh filter cake. Table 4 is an analytical data summary of water samples from the eight monitor wells.

Significant groundwater contamination exists in the surficial aquifer in the vicinity of wells B-2s, B-3s, B-5s, and B-6s. The shallow confined aquifer appears uncontaminated, however, trace nonquantified concentrations of several organic compounds were reported in well B-4d. The presence or absence of contamination in the lower aquifer will have to be verified by further sampling. The possibility of contamination in the deeper aquifer exists due to a downward hydraulic gradient present across the site.

Table 3. Summary of Analytical Data of Landfill Solids, Embankment Leachate, and Leachate Oil Fraction, Reichhold Chemicals, Inc., Gulfport, Mississippi

Volatile Compounds	Oil		Leachate	Landfill Solids	Fresh Filter Cake
1,2-Dichloroethane Benzene Toluene Ethyl Benzene Xylenes 1,3-Cyclopentadiene Dimethyl Butane 1,3-Cyclohexadiene	500 6000 8000 9000 2000	·* :	7 4 5 4 22	10 25 97	480 56 840
Acid Compounds Phenols	į	* pt s. s.	.690	. :22	
Base/Neutral Compound		-			,
Naphthalene Dicyclopentadiene Methyl Styrene C ₃ -Alkyl Benzenes Indene Biphenyl Diphenyl Ether All values in ppm. Blanks indicate values	110,000 130,000 50,000 140,000 110,000 40,000 90,000	dete	1.7 1.1	120 230	926

jd/BG/033

Summary of Analytical Data of Water Samples from Monitoring Wells, Reichhold Chemicals, Inc., Gulfport, Mississippi All values in PPB unless otherwise noted. Parameter 1d 3s 4d 6s 6đ 1s TOC (mq/1)35 74 12 64 24 85 225 50 TKN (mg/1)34 34 87 48 48 1,670 59 5.4 5.3 5.6 5.7 5.9 5.9 4.1 Нq 100 820 190 160 1,000 10,600 250 Conductivity (umhos/cm) 104 Volatiles Methylene Chloride 280 150 Trans-1-2-Dichloroethene Trichloroethylene 230 Benzene 250 7,000 470 5,500° Tetrachloroethylene 59 10,000 2,600 1,400 Toluene 15 8,000 2,400 7,200 120 Ethyl Benzene 40,000 Xylene Isomers 24,000 38,000 14,000 40 3,700 Cyclopentane 2,000 140 180 14,000 Cyclopentene 6,000 1,400 -Pentadiene Isomers 390 5,500 Pentene Isomers Dimethyl Sulfide -340110 Cyclohexane 1,200 Methyl Cyclohexane Acid Compounds Phenol 330 2-4-Dimethylphenol Base/Neutral Compounds 2,400 Naphthalene 1,200 Bis(2-Ethylhexyl) Phthalate Dicyclopentadiene 600 740 150 Methyl Ethyl Benzene 1,100 1,700 Methyl Ethenyl Benzene 1,300 1-H-Indene 720 C_-Substituted Benzene 2,500 -Substituted Benzene 240 3-Methyl Aniline 1,200 -2,3,4-Trimethyl LCyclopentene-1-One *Present at levels below method detection limit Blanks indicate values below method detection limit jd/BG/033

Analyses of specific conductance of water samples from wells B-2s, B-5s, and B-6s, indicate the landfill leachate is electrically conductive, possibly from inorganic contaminants. A significant conductivity contrast exists between wells immediately downgradient of the landfill (B-2s, B-5s, B-6s) and all other wells. Therefore, if further definition of the landfill contaminant plume is required, a conductivity survey by surface geophysical techniques may be conducted without installing additional wells.

There are several potential sources of contamination indicated by groundwater flow directions, chemical analyses and field observations. Apparent contaminated seeps occur in several locations along the canal embankment adjacent to the landfill. This fact coupled with the relatively steep flow gradient from the center of the site towards the canal indicates the landfill is the probable source. High TKN values in Well B-6s indicates probable landfill contamination since ammonia is a major component of the filter cake wastes. High values of specific conductance support this conclusion, and probably are the result of dissolved chlorides from ammonium chloride in the filter cake.

The large magnitude of organic compound concentrations in well B-3s indicates another potential contamination source in the vicinity of the tank farm. Absence of a significant concentration of TKN in Well B-3s is further evidence of a source other than the landfill. Finally, the mounding in the surficial aquifer indicates induced infiltration from surface impoundments which could act as a source of contamination. Additionally, the presence of chlorinated organics, only in well B-5s, indicate another source, possibly a variation in landfill materials.

CONCLUSIONS

To summarize the findings of the investigation, summary and conclusion statements are given below.

Summary and Conclusions

- Seven soil test borings were drilled to establish the hydrogeologic regime at the Reichhold Chemical Plant, Gulfport, Mississippi.
- 2. Fifteen soil samples were collected for measurement of pH and TOC.
- 3. Two soil samples were collected for measurement of grain size and permeability.
- 4. Eight wells were installed into two aquifers to determine groundwater gradients, flow directions and quality.
- 5. All wells were sampled and analyzed for organic compounds, TOC, TKN, pH, and conductivity.
- 6. Surficial aquifer groundwater flows both northerly and southerly from the center of the site. Due to mounding of the water table, <u>all</u> shallow wells are downgradient of the landfill or other plant facilities.
- 7. Deeper groundwater apparently flows from north to south across the site.
- 8. TOC in both soil and water samples is basically a nonconclusive parameter.

- 9. Significant contamination by organic compounds exists in the surficial aquifer.
- 10. Little, if any, contamination has reached the shallow confined aquifer.
- 11. Probable sources of contamination include the landfill, tank farm, and surface impoundments.

jh/BG/033

APPENDIX A



ENVIRONMENTAL LABORATORY

807 S. McDonough Street Montgomery, Alabama 36104 205/834-2870

REPORT OF ANALYSIS

Client	Reichhold	Chemical			_ Proje	ect No	MG10.75	
Address	Reichhold	Road/P.O.	Box	6548/Gulfport,	MS	39501		
Attention	Gelman/MGN	4		Laboratory No.		·	4821	

Description of Sample: RE: Samples sent to lab on April 20, 1984 by Mike Fessler of CH2M HILL. Samples are part of the Gulfport groundwater study.

Description	Bls	Bld	<u>B2</u>	<u>B3</u>	<u>B4</u>	<u>B5</u>	B6s_	<u>B6d</u>
Organics	*	*	*	*	*	*	*	*
Total Organic Carbon	35	. 74	12	64	24	85	225	68
Total Kjeldahl Nitrogen	34	34	87	48	48	50	1670	59
pH (units)**	5.4	5. 3	5.6	5.7	5.9	5.9	4.1	8.4
Conductivity (umhos)**	104	100	820	190	160	1.000	10,600	250

^{*}Data previously submitted

All results expressed as mg/L unless otherwise noted.

All analyses conducted in accordance with STANDARD METHODS FOR WATER AND WASTEWATER.

Respectfully submitted,

Craig O Vinson, Laboratory Director

LAB-9/1/78-0

^{**}Aliquot of sample taken from glass container prepared for organics. Possible contamination from cleaning solvents.



ORGANIC ANALYSIS

SAMPLE INFORMATION
Client: Reichhold Chemicals, Inc. Attn: Steve Gelman
Address: CH2M HILL P. O. Box 2499 Montgomery, AL 36104
Date Received: April 20, 1984 Date Reported: May 1, 1984
Types and Quantity of Samples:Eight Water Samples
Analysis Requested:
1. Priority Pollutants Volatiles X 3. Trihalomethanes Base/Neutrals X 4. PCB's Acids S. Other Pesticides
Pesticides
ANALYTICAL INSTRUMENTATION
Finnigan Model 4021 Gas Chromatograph/Mass Spectrometer/Data System equipped with a Tekmar LSC-1 Liquid Sample concentrator.
Varian Model 3700 Gas Chromatograph equipped with flame ionization, electron capture, and thermionic specific detectors.
ANALYTICAL METHODOLOGY
1. Priority Pollutants—The samples are analyzed in accordance with procedures described in Methods 608, 624, and 625, EPA-600/4-82-057 (1982)
 Phenoxyacid Herbicides—Samples are analyzed in accordance with procedures outlined in Methods 7, Federal Register, Vol. 38, No. 75, Part II, November 28, 1973.
 Pesticides and PCB's (soil, sediment, etc.)—Samples are analyzed in accordance with procedures outlined in EPA Method 8.08, Test Methods for Evaluating Solid Waste, 1980.
Respectfully submitted,
Harold E. Cole, Mass Spectroscopist/Manager Organics
Craig O. Vinson, Laboratory Director

HILL

GC/MS Report

Analyst _____
Date of Analysis ____ 4/20/84

Client	Reichhold Chemicals,	Inc.	Laboratory No.	4821A
	Sample labeled Well F	1-15	•	

				1
Compounds	Conc.2	1		

Chloromethane
I BWDC = Below Method Detection Fimit I I

*Detected, but less than stated method detection limit.

Comments _



GC/MS Report

Analyst	M. Price
Date of Analysis	4/20/84

Client	Reichhold Chemicals, Inc.	•	_Laboratory No	4821B
Sample Description	Sample labeled Well B-1D	; §	,	

CompoundsMDL¹ PPBConc.² PPBChloromethane10 BMDLBromomethane10 BMDLVinyl Chloride10 BMDLChloroethane10 BMDLMethylene Chloride5 BMDLTrichlorofluoromethane5 BMDL1,1-Dichloroethene5 BMDL1,1-Dichloroethane5 BMDL		,				
Bromomethane Vinyl Chloride Chloroethane Methylene Chloride Trichlorofluoromethane 1,1-Dichloroethane 5 BMDL 5 BMDL 5 BMDL 1,1-Dichloroethane 5 BMDL 5 BMDL 5 BMDL	Compounds					
Trans-1,2-Dichloroethene Chloroform 1,2-Dichloroethane 1,1,1-Trichloroethane 1,2-Dichloroethane 1,2-Dichloromethane 1,2-Dichloropropane 1,2-Dichloropropane 1,2-Dichloropropane 1,2-Dichloropropene 1,2-Dichloropropene 1,2-Dichloropropene 1,2-Dichloropropene 1,1,2-Trichloroethane 1,1,2-Trichloroethane 1,1,2-Trichloroethane 1,1,2-Trichloropropene 2-Chloroethyl vinyl ether 10 BMDL 1,1,2,2-Tetrachloroethane 1,2-Tetrachloroethane 1,2-Tetrachloroethane 1,2-Tetrachloroethane 1,2-Tetrachloroethane 1,2-Tetrachloroethane 1,2-Tetrachloroethane 1,3-Dichloroethane 1,1,2-Tetrachloroethane 1,2-Tetrachloroethane 1,1,2,2-Tetrachloroethane 1,2-Tetrachloroethane 1,2-Tetrachloroethane 1,2-Tetrachloroethane 1,2-Tetrachloroethane 1,3-Dichloroethane 1,1,2,2-Tetrachloroethane 1,1,2,2-Tetrachloroethane 1,1,2,2-Tetrachloroethane 1,1,2,2-Tetrachloroethane 1,1,2,2-Tetrachloroethane 1,1,2,2-Tetrachloroethane 1,2-Tetrachloroethane 1,2-Tetrachloroethane 1,2-Tetrachloroethane 1,3-Dichloroethane 1,1,2,2-Tetrachloroethane 1,2-Tetrachloroethane 1,2-Tetrachloroethane 1,3-Dichloroethane 1,1,2,2-Tetrachloroethane 1,2-Tetrachloroethane 1,3-Dichloroethane 1,3-Dichloroethane 1,3-Dichloroethane 1,3-Dichloroethane 1,2-Tetrachloroethane 1,3-Dichloroethane 1,3-Dichloroethane 1,3-Dichloroethane 1,3-Dichloroethane 1,3-Dichloroethane 1,1,2,2-Tetrachloroethane 1,3-Dichloroethane 1,3-Dichloroethane 1,3-Dichloroethane 1,3-Dichloroethane 1,3-Dichloroethane 1,3-Dichloroethane 1,3-Dichloroethane 1,3-Dichloroethane 1,3-Dichloroetha	Bromomethane Vinyl Chloride Chloroethane Methylene Chloride Trichlorofluoromethane 1,1-Dichloroethene 1,1-Dichloroethane Trans-1,2-Dichloroethene Chloroform 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethane 1,2-Dichloropropane Trans-1,3-Dichloropropene Trichloroethylene Benzene Dibromochloromethane 1,1,2-Trichloroethane Cis-1,3-Dichloropropene 2-Chloroethyl vinyl ether Bromoform 1,1,2,2-Tetrachloroethane Tetrachloroethylene Toluene Chlorobenzene Ethyl Benzene Acrylonitrile Acrolein	10 10 10 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	² BMI	DL = Below Method Detection Limit	

	Comments		F.	- =	a v a
and a					
		-			-



GC/MS Report

W. Dickens 4/23/84 Date of Analysis

Client	Reichhold Chemicals, Inc.	:	Laboratory No	4821C
Sample Description	Sample labeled Well B-2	:		
Campic Description				

Compounds	MDL¹ PPB	Conc. ² PPB	
Chloromethane Bromomethane Vinyl Chloride Chloroethane Methylene Chloride Trichlorofluoromethane 1,1-Dichloroethene 1,1-Dichloroethane Trans-1,2-Dichloroethene Chloroform 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethane 1,2-Dichloropropane Trans-1,3-Dichloropropene Trichloroethylene Benzene Dibromochloromethane 1,1,2-Trichloroethane Cis-1,3-Dichloropropene 2-Chloroethyl vinyl ether Bromoform 1,1,2,2-Tetrachloroethane Tetrachloroethylene Toluene Chlorobenzene Ethyl Benzene Acrylonitrile Acrolein Dichlorodifluoromethane Other Compounds* Cyclopentane Cyclopentene	10 10 10 10 10 10 5 5 5 5 5 5 5 5 5 5 5	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	

*Tentatively identified and quantitatively estimated.

Comments _

	CH.	2N1
-		2N1 IILL

GC/MS Report

Añalyst	 V/ .	Dickens
Date of Analysis		4/23/84

Client _____ Reichhold Chemicals, Inc.

Laboratory No. 4821D

				:	-		
Compounds		Conc.2					
	PPB	PPB					
Chloromethane	1000	BMDL]	ļ	j
Bromomethane		BMDL					
Vinyl Chloride	1	BMDL				ì	
Chloroethane		BMDL			[1	
Methylene Chloride	1	BMDL					
Trichlorofluoromethane		BMDL	į į				
1,1-Dichloroethene		BMDL	:				
1,1-Dichloroethane	B.	BMDL	į,				
Trans-1,2-Dichloroethene	L	BMDL	į į		-		
Chloroform		BMDL			Ì		
1,2-Dichloroethane		BMDL					
1,1,1-Trichloroethane	1	BMDL	:				
Carbon Tetrachloride		BMDL					
Bromodichloromethane		BMDL	:				
1,2-Dichloropropane	4	BMDL					
Trans-1,3-Dichloropropene		BMDL					
Trichloroethylene	1	BMDL					
Benzene		7000	1				
Dibromochloromethane		BMDL					
1,1,2-Trichloroethane		BMDL	1				
Cis-1,3-Dichloropropene		BMDL			ļ		
2-Chloroethyl vinyl ether		BMDL					
Bromoform	III.	I .					
1,1,2,2-Tetrachloroethane	1	BMDL]
Tetrachloroethylene		BMDL				İ	
Toluene	l l	1	1			}	
Chlorobenzene		BMDL	1				
Ethyl Benzene		8000					
Acrylonitrile		BMDL					ļ
Acrolein		BMDL				1	
Dichlorodifluoromethane	ND ³	DOMDL					
Dictiorodination	1,40	ļ					
Other Compounds*							
Other Compounds	}	1					
Xylenes		40,000	1				
Cyclopentane	}	14,000		Method Detection Limit			
Cyclopentane	1	2000	4		- 1 :!!		
Pentadiene isomers		6000	1	= Below Method Detectio	n Limit		1
rentagiene isomers		0000	$^{3}ND = N$	lot Determined	-		
			<u> </u>			<u> </u>	<u> </u>

Comments .	*Tentatively	identified	and	quantitatively	estimated
JOHITHEITIS					



GC/MS Report

Analyst	W. Dickens
Date of Analysis_	4/23/84
_Laboratory No	4821F

Reichhold Chemicals, Inc. Client . Sample Description _

Sample labeled Well B-5

Compounds	MDI 1	Conc.2	
Compounds	PPB	PPB	
Chloromethane	100	BMDL	
Bromomethane	100	BMDL	
Vinyl Chloride	1	BMDL	
Chloroethane	100	BMDL	'
Methylene Chloride	50	280	
Trichlorofluoromethane		BMDL	
1,1-Dichloroethene	50	BMDL	
1,1-Dichloroethane	50	BMDL	
Trans-1,2-Dichloroethene	50	150	· :
Chloroform	50	BMDL	
1,2-Dichloroethane	50	BMDL	
1,1,1-Trichloroethane	50	BMDL	
Carbon Tetrachloride	50	BMDL	
Bromodichloromethane	50	BMDL	
1,2-Dichloropropane	50	BMDL	, in the second
Trans-1,3-Dichloropropene	50	BMDL	
Trichloroethylene	50	230	
Benzene	50	470	
Dibromochloromethane	50	BMDL	
1,1,2-Trichloroethane	50	BMDL	
Cis-1,3-Dichloropropene	50	BMDL	
2-Chloroethyl vinyl ether	100	BMDL	
Bromoform	50	BMDL	
1,1,2,2-Tetrachloroethane	50	BMDL	
Tetrachloroethylene	50	59	· ·
Toluene	50	2600	
Chlorobenzene	50	BMDL	
Ethyl Benzene	50	2400	
Acrylonitrile	1000	BMDL	
Acrolein	1000	BMDL	
Dichlorodifluoromethane	ND ³		
Other Compounds*			
Other Compounds*	1	1	
Dimethyl sulfide Cyclopentene		340	1
Pentene isomers		180	1
		390	
Cyclohexane		110	
Methyl cyclohexane	1	1200	1 Nij = Noj Determined
Xylene isomers	<u> </u>	24,000	'

Commonto	*Tentatively	identified	and	quantitatively	estimated.
Comments					



GC/MS Report

, . 		-		
Analyst			Η,	Cole
	Ĭ4	-		- 4-
Date of Analysis	-	-	4/2	25/84

Client _____ Reichhold Chemicals, Inc. ____

Laboratory No. 4821G

Compounds	MDL¹ PPB	Conc. ² PPB	
Chloromethane Bromomethane Vinyl Chloride Chloroethane Methylene Chloride Trichlorofluoromethane 1,1-Dichloroethene 1,1-Dichloroethane Trans-1,2-Dichloroethene Chloroform 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethane 1,2-Dichloropropane Trans-1,3-Dichloropropene Trichloroethylene Benzene Dibromochloromethane 1,1,2-Trichloroethane Cis-1,3-Dichloropropene 2-Chloroethyl vinyl ether Bromoform 1,1,2,2-Tetrachloroethane Tetrachloroethylene Toluene Chlorobenzene Ethyl Benzene Acrylonitrile Acrolein Dichlorodifluoromethane	50 50 50 50 50 50 50	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	
Other Compounds* Cyclopentane Cyclopentene Pentene isomers Pentadiene isomers Xylenes		3700 14,000 5500 1400 38,000	¹ MDL = Method Detection Limit ² BMDL = Below Method Detection Limit

Comments _	*Tentatively	identified	and	quantitatively	estimated.	
			. .	-		

	7
CHIM	
CHAN	٠
• ■■ L JH I	
	. :

GC/MS Report

Analyst W. Dickens

Date of Analysis 4/25/84

Client _____ Reichhold Chemicals, Inc. ____Laboratory No. ____ 4821H

	Compounds	MDL¹ PPB	Conc. ² PPB				
E \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Chloromethane Bromomethane Vinyl Chloride Chloroethane Methylene Chloride Frichlorofluoromethane I,1-Dichloroethene I,1-Dichloroethane Frans-1,2-Dichloroethene Chloroform I,2-Dichloroethane I,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethane I,2-Dichloropropane Trans-1,3-Dichloropropene Trichloroethylene Benzene Dibromochloromethane I,1,2-Trichloroethane Cis-1,3-Dichloropropene 2-Chloroethyl vinyl ether Bromoform I,1,2,2-Tetrachloroethane Tetrachloroethylene Toluene Chlorobenzene Ethyl Benzene Acrylonitrile Acrolein Dichlorodifluoromethane	10 10 10 10 10 10 55 55 55 55 55 55 55 55 55 55 55 55 55	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	² ВМС	_ = Method Detection Limit DL = Below Method Detection Li	mıt	
L				יַטאַ	= Not Determined		

ī	
1	C11.1.4
1	CH2M
- 1	
- (
- 1	
Į	

GC/MS Report

Analyst _____ W. Dickens

Date of Analysis _

4/25/84

Client ____ Reichhold Chemicals, Inc.

_Laboratory No. _

4821A

		, , , , , , , , , , , , , , , , , , , 					 ,	
Compounds	MDL1 PPB	Conc. ² PPB		i				
Phenol 2-Chlorophenol 2-Nitrophenol 2-4-Dimethylphenol 2-4-Dichlorophenol 4-Chloro-3-methylphenol 2,4,6-Trichlorophenol 2,4-Dinitrophenol 4-Nitrophenol 2-Methyl-4,6-dinitrophenol Pentachlorophenol	10 10 10 10 10 10 10 50 10	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL			S 11			
			1	. = Method Dete DL = Below Met		Limit		

Com	ments
-----	-------

CH2M

GC/MS Report

Analyst	₩.	Dickens
Date of Analysis		4/25/84
		11921 D

Client ____ Reichhold Chemicals, Inc.

__Laboratory No. _____4821B

Compounds	MDL ¹ PPB	Conc. ² PPB				
Phenol 2-Chlorophenol 2-Nitrophenol 2-4-Dimethylphenol 2-4-Dichlorophenol 4-Chloro-3-methylphenol 2,4,6-Trichlorophenol 2,4-Dinitrophenol 4-Nitrophenol 2-Methyl-4,6-dinitrophenol Pentachlorophenol	10 10 10 10 10 10 50 10	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL				
		-	1	. = Method Detec DL = Below Metho	mit	

Comments		:	 +5, 19
	:		ig = mag
			· <u>m</u> : -

CH2N1

GC/MS Report

Analyst	W. Dickens
Date of Analysis _	4/25/84
	11821 C

Client	Reichhold Chemicals, Inc.	Laboratory No	4821 C
Sample Description	Sample labeled Well B-2		. :

				!			·	
Compounds	MDL1 PPB	Conc ² PPB						
Phenol 2-Chlorophenol 2-Nitrophenol 2-4-Dimethylphenol 2-4-Dichlorophenol 4-Chloro-3-methylphenol 2,4,6-Trichlorophenol 2,4-Dinitrophenol 4-Nitrophenol 2-Methyl-4,6-dinitrophenol Pentachlorophenol	PPB 10 10 10 10 10 10 50 10 50 10	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL						
			1	DL = Method (MDL = Below (Limit		

	1	
Comments		Ę.
	aw in	
	19 mily	

CH1V1
HILL

GC/MS Report

Analyst ______ W. Dickens

Date of Analysis _

4/25/84

Client ____

Reichhold Chemicals, Inc.

Laboratory No. 4821D

Compounds	MDL ¹ PPB	Conc ² PPB		
Phenol 2-Chlorophenol 2-Nitrophenol 2-4-Dimethylphenol 2-4-Dichlorophenol 4-Chloro-3-methylphenol 2,4,6-Trichlorophenol 4-Nitrophenol 4-Nitrophenol 2-Methyl-4,6-dinitrophenol Pentachlorophenol	50 50 50 50 50 50 50 250	BMDL BMDL * BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL		
·				
			¹ MDL = Method Detection Limit ² BMDL = Below Method Detection Lin	nit

Comments _	*Detected,	but	less	than	the	stated	method	detection	limit.	_

CH2M	The state of the state of

Client_

ACID COMPOUNDS

GC/MS Report

Analyst	W. Dickens
Date of Analysis _	4/25/84
Laborator No	4821E

Sample Description Sample labeled Well B-4

Reichhold Chemicals, Inc.

Compounds	MDL ¹ PPB	Conc. ² PPB
Phenol 2-Chlorophenol 2-Chlorophenol 2-4-Dimethylphenol 2-4-Dichlorophenol 4-Chloro-3-methylphenol 2,4,6-Trichlorophenol 4-Nitrophenol 2-Methyl-4,6-dinitrophenol Pentachlorophenol	10 10 10 10 10 10 10 50 10	* BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL
lethyl-4,6-dinitrophenol ntachlorophenol		BMDI BMDI

Comments	*Detected,	but	less	than	the	stated	method	detection	limit.	
-										
					-			4		
									-	

CH2M

GC/MS Report

Analyst	 .s	··	·₩.	Dick	ens
Allalyst	 				

Date of Analysis _

4/26/84

Client ____ Reichhold Chemicals, Inc.

Laboratory No. 4821F

Sample Description Sample labeled Well B-5

Compounds	MDL ¹ PPB	Conc. ² PPB	
Phenol 2-Chlorophenol 2-Nitrophenol 2-4-Dimethylphenol 2-4-Dichlorophenol 4-Chloro-3-methylphenol 2,4,6-Trichlorophenol 2,4-Dinitrophenol 4-Nitrophenol 2-Methyl-4,6-dinitrophenol Pentachlorophenol	200 200 200 200 200 200 200 1000 200 1000	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	
			¹ MDL = Method Detection Limit ² BMDL = Below Method Detection Limit

Comments		
		-

....

	CH2V1
ĺ	

GC/MS Report

Analyst ______ W. Dickens

Date of Analysis ______4/26/84

Laboratory No. _____4821G

Client	Reichhold	Chemicals,	Inc.

Compounds	MDL¹ Con	.2	
Phenol 2-Chlorophenol 2-Nitrophenol 2-4-Dimethylphenol 2-4-Dichlorophenol 4-Chloro-3-methylphenol 2,4,6-Trichlorophenol 2,4-Dinitrophenol 4-Nitrophenol 2-Methyl-4,6-dinitrophenol Pentachlorophenol	200 330 200 BMD 200 BMD 200 BMD 200 BMD 200 BMD 1000 BMD 1000 BMD 200 BMD		
		¹ MDL ≈ Method Detection Limit	
		¹MDL ≈ Method Detection Limit ²BMDL = Below Method Detection Limit	

Comments _	*Detected,	but	less	than	stated	method	detection	limit.	
									e : =
									1

CH2M ■HILL

GC/MS Report

Analyst	W.	Dickens
Date of Analysis		4/26/84

		Date of Attalysis	
Client	Reichhold Chemicals, Inc.	Laboratory No.	4821H
Sample Description	Sample labeled Well B-6D		
Campic Description -			

Compounds	MDL ¹ PPB	Conc ² PPB				
Phenol 2-Chlorophenol 2-Nitrophenol 2-4-Dimethylphenol 2-4-Dichlorophenol 4-Chloro-3-methylphenol 2,4,6-Trichlorophenol 2,4-Dinitrophenol 4-Nitrophenol 2-Methyl-4,6-dinitrophenol Pentachlorophenol	10 10 10 10 10 10 10 50 10	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL				
			1	= Method Detection DL = Below Method D		

Comments			
	!		
	<u></u>		
	İ		



Client _

BASE/NEUTRAL COMPOUNDS

GC/MS Report

Analyst	W. Dickens
Date of Analysis _	4/25/84
_Laboratory No	4821 A

_Laboratory No. ,

Sample Description Sample labeled Well B-1S

Reichhold Chemicals, Inc.

Compounds	MDL ¹ PPB	Conc. ²		Compounds	MDL ¹ PPB	Conc. ²
Bis (2-chloroethyl) ether 1,3-Dichlorobenzene 1,4-Dichlorobenzene Bis (2-Chloroisopropyl) ether Hexachloroethane N-nitroso-di-n-propylamine Nitrobenzene Isophorone Bis (2-Chloroethoxy) methane 1,2,4-Trichlorobenzene Naphthalene Hexachlorobutadiene Hexachlorocylopentadiene 2-Chloronaphthalene Acenaphthylene Dimethylphthalate 2,6-Dinitrotoluene Acenaphthene 2,4-Dinitrotoluene Fluorene 4-Chlorophenyl phenyl ether Diethyl phthalate N-nitrosodiphenylamine ³ 1,2-Diphenylhydrazine ⁴	10 10 10 10 10 10 10 10 10 10 10 10 10 1	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	Hexachl Phenant Anthrace Dibutyl Fluorant Pyrene Benzidir Butyl be 2,3,7,8-T Benzo (Chryser 3,3'-Dicl Bis (2-e Di-n-oc Benzo (Indeno Dibenzo Benzo (N-nitros Bis (chi 1 MDL = 2 BMDL 3 Detect 4 Detect	ene phthalate thene ne enzyl phthalate etrachlorodibenzo-p-dioxin a) anthracene	10 10 10 10 10 10 10 10 10 10 10 10 10 1	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL

Comments		.e	
	!		
÷			



■HILL GC/MS Report

Analyst		W.	Dick	er	ıs
	-			-	

Date of Analysis _____4/25/84

Client _____ Reichhold Chemicals, Inc.

__Laboratory No. _____4821B

	T			<u> </u>	γ	
Compounds	MDL ¹ PPB	Conc. ² PPB		Compounds	MDL¹ PPB	Conc. ² PPB
Bis (2-chloroethyl) ether 1,3-Dichlorobenzene 1,4-Dichlorobenzene Bis (2-Chloroisopropyl) ether Hexachloroethane N-nitroso-di-n-propylamine Nitrobenzene Isophorone Bis (2-Chloroethoxy) methane 1,2,4-Trichlorobenzene Naphthalene Hexachlorobutadiene Hexachlorobutadiene 2-Chloronaphthalene Acenaphthylene Dimethylphthalate 2,6-Dinitrotoluene Acenaphthene 2,4-Dinitrotoluene Fiuorene 4-Chlorophenyl phenyl ether Diethyl phthalate N-nitrosodiphenylamine ³ 1,2-Diphenylhydrazine ⁴	10 10 10 10 10 10 10 10 10 10 10 10 10 1	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	Hexachl Phenant Anthrace Dibutyl Pluorant Pyrene Benzidir Butyl be 2,3,7,8-T Benzo (Chryser 3,3'-Dict Bis (2-e Di-n-oc Benzo (Benzo (Indeno Dibenzo (N-nitros Bis (chl	ene phthalate thene ne ne nrzyl phthalate etrachlorodibenzo-p-dioxin a) anthracene	10 10 10 10 10 10 10 10 10 10 10 10 10 ND ⁵ ND ⁵	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL

Comments				·····
	The state of the s	F-2 - 1 - 1	٠.	1.45



GC/MS Report

Analyst	W. Dickens
Date of Analysis	4/25/84

4821C

Client _____ Reichhold Chemicals, Inc. ____Laboratory No. ____

					· · · · · · · · · · · · · · · · · · ·	
Compounds	MDL ¹ PPB	Conc. ² PPB		Compounds	MDL ¹ PPB	Conc. ² PPB
Bis (2-chloroethyl) ether 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bis (2-Chloroisopropyl) ether Hexachloroethane N-nitroso-di-n-propylamine Nitrobenzene Isophorone Bis (2-Chloroethoxy) methane 1,2,4-Trichlorobenzene Naphthalene Hexachlorobutadiene Hexachlorocylopentadiene 2-Chloronaphthalene Acenaphthylene Dimethylphthalate 2,6-Dinitrotoluene Acenaphthene 2,4-Dinitrotoluene Fluorene 4-Chlorophenyl phenyl ether Diethyl phthalate N-nitrosodiphenylamine ³ 1,2-Diphenylhydrazine ⁴ Other Compounds Dicyclopentadiene	10 10 10 10 10 10 10 10 10 10 10 10 10 1	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	Hexachler Phenanti Anthrace Dibutyl program Fluorant Pyrene Benzidir Butyl be 2,3,7,8-T Benzo (Chrysen 3,3'-Dich Benzo (Indeno Dibenzo (Indeno Indeno Indeno (Indeno Indeno e chthalate hene le nzyl phthalate etrachlorodibenzo-p-dioxin a) anthracene	10 10 10 10 10 10 10 10 10 10 10 10 10 1	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	

Comments _	*Detected,	but	less	than	stated	method	detection	limit.	 •	 2:
						1				



GC/MS Report

Analyst	W.	Dickens

Date of Analysis

4/25/84

Client _____

Reichhold Chemicals, Inc.

__Laboratory No. ___

4821D

Compounds	MDL ¹ PPB	Conc. ² PPB	Compounds	MDL¹ PPB	Conc.² PPB
Bis (2-chloroethyl) ether 1,3-Dichlorobenzene 1,4-Dichlorobenzene Bis (2-Chloroisopropyl) ether Hexachloroethane N-nitroso-di-n-propylamine Nitrobenzene Isophorone Bis (2-Chloroethoxy) methane 1,2,4-Trichlorobenzene Naphthalene Hexachlorobutadiene Hexachlorobutadiene Hexachlorocylopentadiene 2-Chloronaphthalene Acenaphthylene Dimethylphthalate 2,6-Dinitrotoluene Acenaphthene 2,4-Dinitrotoluene Fluorene 4-Chlorophenyl phenyl ether Diethyl phthalate N-nitrosodiphenylamine³ 1,2-Diphenylhydrazine⁴ Dicyclopentadiene Other Compounds* Methyl ethyl benzene Methyl ethenyl benzene Methyl ethenyl benzene 1-H-Indene	50 50 50 50 50 50 50 50 50 50 50 50 50 5	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL		50 50 50 50 50 50 50 50 50 50 50 50 50 5	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL

Comments	*Tentatively	identified	and	quantitatively	estimated.
----------	--------------	------------	-----	----------------	------------



GC/MS Report

Analyst	W.	Dickens	
Allalysi		 	•

Date of Analysis _

4/25/84

Client _____ Reichhold Chemicals, Inc.

__Laboratory No. _____4821E

Compounds	MDL ¹ PPB	Conc. ² PPB		Compounds	MDL ¹ PPB	Conc. ²
Bis (2-chloroethyl) ether 1,3-Dichlorobenzene 1,4-Dichlorobenzene Bis (2-Chloroisopropyl) ether Hexachloroethane N-nitroso-di-n-propylamine Nitrobenzene Isophorone Bis (2-Chloroethoxy) methane 1,2,4-Trichlorobenzene Naphthalene Hexachlorobutadiene Hexachlorocylopentadiene 2-Chloronaphthalene Acenaphthylene Dimethylphthalate 2,6-Dinitrotoluene Acenaphthene 2,4-Dinitrotoluene Fluorene 4-Chlorophenyl phenyl ether Diethyl phthalate N-nitrosodiphenylamine ³ 1,2-Diphenylhydrazine ⁴	10 10 10 10 10 10 10 10 10 10 10 10 10 1	BMDL BMDL BMDL BMDL BMDL BMDL BMDDL	Hexachlo Phenanth Anthrace Dibutyl p Fluoranth Pyrene Benzidine Butyl ber 2,3,7,8-Te Benzo (a Chrysene 3,3'-Dich Bis (2-eth Di-n-octy Benzo (b Benzo (c Indeno (Dibenzo Benzo (c N-nitros Bis (chlc	ne hthalate nene e nzyl phthalate etrachlorodibenzo-p-dioxin) anthracene	10 10 10 10 10 10 10 10 10 10 10 10 10 1	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL

Comments _	*Detected,	but	less	than	the	stated	method	detection	limit.
Comments _									



GC/MS Report

Analyst	 W.	Dickens	
Date of Analysis		4/26/84	

Client _____ Reichhold Chemicals, Inc.

_Laboratory No. _

4821F

	T		The state of the s		
Compounds	MDL ¹ PPB	Conc. ² PPB	Compounds	MDL ¹ PPB	Conc. ² PPB
Bis (2-chloroethyl) ether 1,3-Dichlorobenzene 1,4-Dichlorobenzene Bis (2-Chloroisopropyl) ether Hexachloroethane N-nitroso-di-n-propylamine Nitrobenzene Isophorone Bis (2-Chloroethoxy) methane 1,2,4-Trichlorobenzene Naphthalene Hexachlorobutadiene Hexachlorobutadiene Hexachlorocyiopentadiene 2-Chloronaphthalene Acenaphthylene Dimethylphthalate 2,6-Dinitrotoluene Acenaphthene 2,4-Dinitrotoluene Fluorene 4-Chlorophenyl phenyl ether Diethyl phthalate N-nitrosodiphenylamine³ 1,2-Diphenylhydrazine⁴ Dicyclopentadiene Other Compounds* Cn-substituted benzene 1-H-Indene 3-Methyl aniline	200 200 200 200 200 200 200 200 200 200	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	4-Bromophenyl phenyl ether Hexachlorobenzene Phenanthrene Anthracene Dibutyl phthalate Fluoranthene Pyrene Benzidine Butyl benzyl phthalate 2,3,7,8-Tetrachlorodibenzo-p-dioxin Benzo (a) anthracene Chrysene 3,3'-Dichlorobenzidine Bis (2-ethylhexyl) phthalate Di-n-octyl phthalate Benzo (b) fluoranthene Benzo (a) pyrene Indeno (1,2,3-cd) pyrene Dibenzo (a,h) anthracene Benzo (g,h,i) perylene N-nitrosodimethylamine Bis (chloromethyl) ether 1 MDL = Method Detection Limit 2 BMDL = Below Method Detection Limit 3 Detected as Diphenylamine 4 Detected as Azobenzene 5 ND = Not Determined	200 200 200 200 200 200 200 200 200 200	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL

Comments	*Tentatively	identified	and	quantitatively	estimated.
----------	--------------	------------	-----	----------------	------------



GC/MS Report

Anaiyst	W. Dickens
Date of Analysis	4/26/84
Laboratory No.	4821G

Client _____

Sample Description Sample labeled Well B-6S

Reichhold Chemicals, Inc.

Compounds		Conc.2	Compounds		Conc.2
	PPB	PPB		PPB	PPB
Bis (2-chloroethyl) ether 1,3-Dichlorobenzene 1,4-Dichlorobenzene Bis (2-Chloroisopropyl) ether Hexachloroethane N-nitroso-di-n-propylamine Nitrobenzene Isophorone Bis (2-Chloroethoxy) methane 1,2,4-Trichlorobenzene Naphthalene Hexachlorobutadiene Hexachlorocylopentadiene 2-Chloronaphthalene Acenaphthylene Dimethylphthalate 2,6-Dinitrotoluene Acenaphthene 2,4-Dinitrotoluene Fluorene 4-Chlorophenyl phenyl ether Diethyl phthalate N-nitrosodiphenylamine ³ 1,2-Diphenylhydrazine ⁴ Dicyclopentadiene Other Compounds* 2,3,4-Trimethyl cyclopentene-1-one C ₃ -substituted benzene	200 200 200 200 200 200 200 200 200 200	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	4-Bromophenyl phenyl ether Hexachlorobenzene Phenanthrene Anthracene Dibutyl phthalate Fluoranthene Pyrene Benzidine Butyl benzyl phthalate 2,3,7,8-Tetrachlorodibenzo-p-dioxin Benzo (a) anthracene Chrysene 3,3'-Dichlorobenzidine Bis (2-ethylhexyl) phthalate Di-n-octyl phthalate Benzo (b) fluoranthene Benzo (k) fluoranthene Benzo (a) pyrene Indeno (1,2,3-cd) pyrene Dibenzo (a,h) anthracene Benzo (g,h,i) perylene N-nitrosodimethylamine Bis (chloromethyl) ether 1 MDL = Method Detection Limit 2 BMDL = Below Method Detection Limit 3 Detected as Diphenylamine 1 Detected as Azobenzene 5 ND = Not Determined	200 200 200 200 200 200 200 200 200 200	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL

Comments	*Tentatively	identified	and	quantitati	vely	estimated.



Reichhold Chemicals, Inc.

GC/MS Report

Analyst	W. Dickens
Date of Analysis	4/26/84
Laboratory No	4821H

Client __ Sample Description Sample labeled Well B-6D

Compounds	MDL ¹ PPB	Conc.² PPB	Compounds	MDL ¹ PPB	Conc. ²
Bis (2-chloroethyl) ether 1,3-Dichlorobenzene 1,4-Dichlorobenzene Bis (2-Chloroisopropyl) ether Hexachloroethane N-nitroso-di-n-propylamine Nitrobenzene Isophorone Bis (2-Chloroethoxy) methane 1,2,4-Trichlorobenzene Naphthalene Hexachlorobutadiene Hexachlorocylopentadiene 2-Chloronaphthalene Acenaphthylene Dimethylphthalate 2,6-Dinitrotoluene Acenaphthene 2,4-Dinitrotoluene Fluorene 4-Chlorophenyl phenyl ether Diethyl phthalate N-nitrosodiphenylamine ³ 1,2-Diphenylhydrazine ⁴	10 10 10 10 10 10 10 10 10 10 10 10 10 1	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	4-Bromophenyl phenyl ether Hexachlorobenzene Phenanthrene Anthracene Dibutyl phthalate Fluoranthene Pyrene Benzidine Butyl benzyl phthalate 2,3,7,8-Tetrachlorodibenzo-p-dioxin Benzo (a) anthracene Chrysene 3,3'-Dichlorobenzidine Bis (2-ethylhexyl) phthalate Di-n-octyl phthalate Benzo (b) fluoranthene Benzo (a) pyrene Indeno (1,2,3-cd) pyrene Dibenzo (a,h) anthracene Benzo (g,h,i) perylene N-nitrosodimethylamine Bis (chloromethyl) ether 1 MDL = Below Method Detection Limit 2 BMDL = Below Method Detection Limit 3 Detected as Diphenylamine 1 Detected as Azobenzene 5 ND = Not Determined	10 10 10 10 10 10 10 10 10 10 10 10 10 ND ⁵ ND	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL

Comments	. ·	



ORGANIC ANALYSIS

SAMPLE INFORMATION	
Client: Reichhold Chemical	Attn: Steve Gelman
Address: CH2M HILL P. O. B	ox 2499 Montgomery, AL 36104
Date Received: March 1, 1984	Date Reported: March 8, 1984
	l Layer Sample
Analysis Requested:	
1. Priority Pollutants Volatiles X Base/Neutrals X Acids X	2. SDWA Pesticides & Herbicides 3. Trihalomethanes 4. PCB's 5. Other
Pesticides	3. Other
LSC-1 Liquid Sample concentrator.	aph/Mass Spectrometer/Data System equipped with a Tekmar aph equipped with flame ionization, electron capture, and
ANALYTICAL METHODOLOGY	
 Priority Pollutants—The samples are ana 608, 624, and 625, EPA-600/4-82-057 (19) 	lyzed in accordance with procedures described in Methods 82)
Phenoxyacid Herbicides—Samples are a Methods 7, Federal Register, Vol. 38, No.	nalyzed in accordance with procedures outlined in 75, Part II, November 28, 1973.
 Pesticides and PCB's (soil, sediment, etc outlined in EPA Method 8.08, Test Method 	c.)—Samples are analyzed in accordance with procedures ods for Evaluating Solid Waste, 1980.
	Respectfully submitted.
	Harold E. Cole, Mass Spectroscopist/Manager Organics
	Craig O. Vinson, Laboratory Director

CH2M

Client_

ACID COMPOUNDS

Reichhold Chemical

GC/MS Report

H. Cole Analyst 3/1/84 Date of Analysis __ 4679 Laboratory No. ___

Sample Description Sample of Oil

		· · · · · · · · · · · · · · · · · · ·	·		 ·· ······	- 3
Compounds	MDL ¹ mg/ml	Conc.2 mg/m				
Phenol 2-Chlorophenol 2-Nitrophenol 2-4-Dimethylphenol 2-4-Dichlorophenol 4-Chloro-3-methylphenol 2,4,6-Trichlorophenol 2,4-Dinitrophenol 4-Nitrophenol 2-Methyl-4,6-dinitrophenol Pentachlorophenol	5 5 5 5 5	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL				
				Method Detection I = Below Method De	-	

Comments		
	see the second s	
	\	-



GC/MS Report

Analyst M. Price

Date of Analysis 3/7/84

Client	Reichhold Chemical	Labora
	Complete Oil	

oratory No. 4679

Sample Description _____Sample of Oil

Compounds		Conc.2 mg/ml		Conc mg/m
Chloromethane Bromomethane Vinyl Chloride Chloroethane Methylene Chloride Trichlorofluoromethane 1,1-Dichloroethene 1,1-Dichloroethane Trans-1,2-Dichloroethene Chloroform 1,2-Dichloroethane Carbon Tetrachloride Bromodichloromethane 1,2-Dichloropropane Trans-1,3-Dichloropropene Trichloroethylene Benzene Dibromochloromethane 1,1,2-Trichloroethane Cis-1,3-Dichloropropene 2-Chloroethyl vinyl ether Bromoform 1,1,2,2-Tetrachloroethane Tetrachloroethylene Toluene Chlorobenzene Ethyl Benzene Acrylonitrile Acrolein Dichlorodifluoromethane	1.0 1.0 1.0 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	Other Compounds* 1,3-Cyclopentadiene Dimethyl butane 1,3-Cylohexadiene MDL = Method Detection Limit BMDL = Below Method Detection Limit ND = Not Determined	8 9 2

Comments	



Client _

BASE/NEUTRAL COMPOUNDS

Reichhold Chemical

GC/MS Report

Analyst	H. Cole
Date of Analysis	3/1/84

Sample Description	Sample of Oil	

4679 __Laboratory No. ____

	T					
Compounds	1	Conc.2		Compounds	l	Conc.2
Bis (2-chloroethyl) ether 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bis (2-Chloroisopropyl) ether Hexachloroethane N-nitroso-di-n-propylamine Nitrobenzene Isophorone Bis (2-Chloroethoxy) methane 1,2,4-Trichlorobenzene Naphthalene Hexachlorobutadiene Hexachlorocylopentadiene 2-Chloronaphthalene Acenaphthylene Dimethylphthalate 2,6-Dinitrotoluene Acenaphthene 2,4-Dinitrotoluene Fluorene 4-Chlorophenyl phenyl ether Diethyl phthalate N-nitrosodiphenylamine ³ 1,2-Diphenylhydrazine ⁴ Other Compounds* Methyl styrene C ₃ -alkyl benzenes Indene Biphenyl Diphenyl ether Dicyclopentadiene	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	Hexachlo Phenanth Anthracer Dibutyl pr Fluoranth Pyrene Benzidine Butyl ben 2,3,7,8-Te Benzo (a) Chrysene 3,3'-Dichli Bis (2-eth Di-n-octy Benzo (b) Benzo (c) Benzo (d) Indeno (1) Dibenzo Benzo (g) N-nitroso Bis (chlor 1 MDL = N 2 BMDL = 3 3 Detected 4 Detected	ne nthalate ene zyl phthalate strachlorodibenzo-p-dioxin anthracene orobenzidine sylhexyl) phthalate I phthalate) fluoranthene) fluoranthene	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL

Comments.	*Tentatively	identified	and	quantitatively	y estimated.



ORGANIC ANALYSIS

SAN	IPLE INFO	RMATION			: !				
				, Α.		1/:	· Canar-ti		ч.
С	lient:	Reichhold Ch	emicai, inc	. A	in:	KIFOI	1 Senapati]
Α	.ddress:	Resins & Bin	ders Div.	P. O.	Box	1433	Pensacola, F	L 32596	
D	ate Received:	November 2	29, 1983	_ Date Re	ported:		December 20,	1983	
Т	ypes and Qua	antity of Samples:	One Filt	er Cake	Sam	ple			
Þ	Analysis Red	quested:	•		and the second second				
4	Driority Doll	Litanta	•	2 SDW	Δ Poeti	cidos 8	Herbicides		
ı	 Priority Poll Volatiles 	×		3. Trihal	ometha	anes 🔔			
	Base/Neutr	alsx_		4. PCB's					•
	Pesticides _	X		J. Olinei				 	•
						No			
AN	~	INSTRUMENT							
	LSC-1	an Model 4021 Gas Liquid Sample cor	s Chromatogra ncentrator.	pn/Mass S	pectro	meter/L	Data System equip	bed with a le	kmar
				ob oguior		th flom	e ionization, elect	ron conture.	and
	thermi	onic specific detect	ors.	bu edmbt	ea wii	ui nan	e ionization, elect	tori capture,	anu
					1		-		
AN	ALYTICAL	METHODOLO	GY						
	e maisais.	Saltana and a section		, -	i .	•••		** ** ** **	
	608, 624,	oliutants— i ne sa , and 625, EPA-600	mpies are anai 0/4-82-057 (198	yzed in ad (2)	cordar	nce witi	n procedures desc	ribed in Meth	lods
	2. Phenoxy Methods	racid Herbicides— 7, Federal Registe	Samples are are are, Vol. 38, No.	nalyzed in 75, Part II	accord Nover	dance v mber 28	vith procedures ou 3, 1973.	tlined in	
	3. Pesticide outlined	es and PCB's (soil, in EPA Method 8.	sediment, etc. 08, Test Metho)—Sampleds for Eva	es are a	analyze g Solid	ed in accordance w Waste, 1980.	vith procedur	es
cc:	Mr. Ben Reichhold Richhold	d Chemical Co	mpany	Respec	tully su	ubmitte	d,	· .	
		, Mississippi	39501	Harold	E.,Cole	e, Mass	Spectroscopist/M	anager Orga	nics
	Steve Ge		-			///	Lineson-		,
	CH2M HI	LL		Crain C) Vinsc	on, Lab	oratory Director		
				-	7		C.C.O. P. DIICCIOI		



BASE/NEUTRAL COMPOUNDS

GC/MS Report

Analyst	W. Dickens
Date of Analysis	12/19/83

Client	Reichhold	Chemical,	Inc.

___Laboratory No. _____4413E

Sample Description Labeled Fresh Filter Cake

	Ţ				
Compounds		Conc.2	Compounds		Conc. ²
Bis (2-chloroethyl) ether 1,3-Dichlorobenzene	100 100	ug/gm BMDL BMDL	4-Bromophenyl phenyl ether Hexachlorobenzene	100 100	ug/gm BMDL BMDL
1,4-Dichlorobenzene	100	BMDL	Phenanthrene	100	BMDL
1,2-Dichlorobenzene Bis (2-Chloroisopropyl) ether	100	BMDL BMDL	Anthracene Dibutyl phthalate	100 100	BMDL BMDL
Hexachloroethane N-nitroso-di-n-propylamine	100	BMDL BMDL	Fluoranthene Pyrene	100	BMDL BMDL
Nitrobenzene	100	BMDL	Benzidine	400	BMDL
Isophorone Bis (2-Chloroethoxy) methane 1,2,4-Trichlorobenzene	100	BMDL BMDL BMDL	Butyl benzyl phthalate 2,3,7,8-Tetrachlorodibenzo-p-dioxin Benzo (a) anthracene	100	BMDL BMDL
Naphthalene	100	BMDL	Chrysene 3,3'-Dichlorobenzidine	100	BMDL BMDL
Hexachlorobutadiene Hexachlorocylopentadiene	100	BMDL BMDL	Bis (2-ethylhexyl) phthalate	400 100	BMDL BMDL
2-Chloronaphthalene Acenaphthylene	100 100	BMDL	Di-n-octyl phthalate Benzo (b) fluoranthene	100	BMDL BMDL
Dimethylphthalate 2,6-Dinitrotoluene	100	BMDL BMDL	Benzo (k) fluoranthene Benzo (a) pyrene	100	BMDL BMDL
Acenaphthene 2,4-Dinitrotoluene	100	BMDL BMDL	Indeno (1,2,3-cd) pyrene Dibenzo (a,h) anthracene	100	BMDL BMDL
Fluorene 4-Chlorophenyl phenyl ether	100	BMDL BMDL	Benzo (g,h,i) perylene N-nitrosodimethylamine	100 ₅	BMDL
Diethyl phthalate N-nitrosodiphenylamine ³	100	BMDL	Bis (chloromethyl) ether	ND ⁵	
1,2-Diphenylhydrazine ⁴	100	BMDL BMDL			
Dicyclopentadiene		926			
			¹ MDL = Method Detection Limit		
			² BMDL = Below Method Detection Limit ³ Detected as Diphenylamine		
			⁴ Detected as Azobenzene		
			⁵ ND ≠ Not Determined		

Comments	
	;
	i e e e e e e e e e e e e e e e e e e e
	f .

CHAN	
##HILL	

ACID COMPOUNDS

GC/MS Report

Client _____

Analyst	W. Dickens
Date of Analysis	12/19/83
Laboratory No	4413E

Sample Description Labeled Fresh Filter Cake

Riechhold Chemical, Inc.

Compounds	NATOL 1	C0202				
Compounds	ug/gr	Conc ² nug/gm				
Phenol	100	BMDL				
2-Chlorophenol	100	BMDL				
2-Nitrophenol	100	BMDL				
2-4-Dimethylphenol	100	BMDL	•			
2-4-Dichlorophenol	100	BMDL BMDL				
4-Chloro-3-methylphenol 2,4,6-Trichlorophenol	100	BMDL		!		
2,4-Dinitrophenol	500	BMDL				
4-Nitrophenol	100	BMDL				
2-Methyl-4,6-dinitrophenol	500	BMDL				
Pentachlorophenol	100	BMDL				
				:	ļ	
				: 		1
				•		
				l t		
			,			
				•	·	
	1					
	İ					
				:		\cdot
			Į			
		l				
				•		
		-		•		1
·						
			١,	: MDL = Method Detection Limit		
			ł			
				BMDL = Below Method Detection Limit		1

Comments			-	
	,			
·		**		.2. 6 - 1-75
	ı			
	i			g

1	1	1.1	4
(Γ.	۱۷,۱	٠,
	# (411	1
-	- (111	1

Client _

VOLATILE COMPOUNDS

Reichhold Chemical, Inc.

GC/MS Report

Analyst	W. Dickens
Date of Analysis_	12/02/83
Laboratory No	4413E

	1 -11 -1		T:14	C-1
Sample Description	Labeled	resn	riiter_	Cake

		,	
Compounds		Conc.² ug/gm	
Chloromethane Bromomethane Vinyl Chloride Chloroethane Methylene Chloride Trichlorofluoromethane 1,1-Dichloroethene 1,1-Dichloroethane Trans-1,2-Dichloroethene Chloroform 1,2-Dichloroethane Carbon Tetrachloride Bromodichloromethane 1,2-Dichloropropane Trans-1,3-Dichloropropene Trichloroethylene Benzene Dibromochloromethane 1,1,2-Trichloroethane Cis-1,3-Dichloropropene 2-Chloroethyl vinyl ether Bromoform 1,1,2,2-Tetrachloroethane Tetrachloroethylene Toluene Chlorobenzene Ethyl Benzene Acrylonitrile Acrolein Dichlorodifluoromethane	20 20 20	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	¹ MDL = Method Detection Limit ² BMDL = Below Method Detection Limit ³ ND = Not Determined

Comments		
	 ·	್, ಇತ್ಯೂ ಗೆಲ - _{ಇಲ್ಲಾ} ಸೈತಿಯಿಂದ



ORGANIC ANALYSIS

SAMPLE INFORMATION	
Client: Reichhold Chemical, Inc. Attn	: S. Gelman
Address: c/o CH2M HILL P. O. Box 2499	Montgomery, AL 36104
Date Received: November 11, 1983 Date Report	
Types and Quantity of Samples: One Leachate Sam	ple and One Landfill Solid
Analysis Requested: 1. Priority Pollutants Volatiles X 3. Trihalome	esticides & Herbicides ethanes
ANALYTICAL INSTRUMENTATION X Finnigan Model 4021 Gas Chromatograph/Mass Spectas LSC-1 Liquid Sample concentrator. Varian Model 3700 Gas Chromatograph equipped thermionic specific detectors.	
ANALYTICAL METHODOLOGY 1. Priority Pollutants—The samples are analyzed in accor	dance with procedures described in Methods
608, 624, and 625, EPA-600/4-82-057 (1982)	
Phenoxyacid Herbicides—Samples are analyzed in acc Methods 7, Federal Register, Vol. 38, No. 75, Part II, No.	vember 28, 1973.
 Pesticides and PCB's (soil, sediment, etc.)—Samples a outlined in EPA Method 8.08, Test Methods for Evaluar 	
Harold Ex	submitted, Cole, Mass Spectroscopist/Manager Organics My Manager Organics inson, Laboratory Director



BASE/NEUTRAL COMPOUNDS

GC/MS Report

Analyst	W. Dickens
	11/22/83
Date of Analysis	11/22/03

4413D

Client _

Reichhold Chemical, Inc.

Laboratory No. _____

Sample Description <u>Leachate - Sample Date 11/10/83</u>

Compounds	MDL ¹ PPB	Conc. ² PPB	Compounds	MDL ¹ PPB	Conc. ² PPB
Bis (2-chloroethyl) ether 1,3-Dichlorobenzene 1,4-Dichlorobenzene Bis (2-Chloroisopropyl) ether Hexachloroethane N-nitroso-di-n-propylamine Nitrobenzene Isophorone Bis (2-Chloroethoxy) methane 1,2,4-Trichlorobenzene Naphthalene Hexachlorobutadiene Hexachlorocylopentadiene 2-Chloronaphthalene Acenaphthylene Dimethylphthalate 2,6-Dinitrotoluene Acenaphthene 2,4-Dinitrotoluene Fluorene 4-Chlorophenyl phenyl ether Diethyl phthalate N-nitrosodiphenyiamine ³ 1,2-Diphenylhydrazine ⁴ Dicyclopentadiene	100 100 100 100 100 100 100 100 100 100	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	4-Bromophenyl phenyl ether Hexachlorobenzene Phenanthrene Anthracene Dibutyl phthalate Fluoranthene Pyrene Benzidine Butyl benzyl phthalate 2,3,7,8-Tetrachlorodibenzo-p-dioxin Benzo (a) anthracene Chrysene 3,3'-Dichlorobenzidine Bis (2-ethylhexyl) phthalate Di-n-octyl phthalate Benzo (b) fluoranthene Benzo (k) fluoranthene Benzo (a) pyrene Indeno (1,2,3-cd) pyrene Dibenzo (a,h) anthracene Benzo (g,h,i) perylene N-nitrosodimethylamine Bis (chloromethyl) ether	100 100 100 100 100 100 100 100 100 100	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL
·			¹ MDL = Method Detection Limit ² BMDL = Below Method Detection Limit ³ Detected as Diphenylamine ⁴ Detected as Azobenzene ⁵ ND = Not Determined		

Comments	 	



Client _____

ACID COMPOUNDS

GC/MS Report

Analyst	W. Dickens
Date of Analysis	11/22/83
Laboratory No	4413D

Sample Description Leachate - Sample Date 11/10/83

Riechhold Chemical, Inc.

Compounds	MDL ¹ PPB	Conc. ²			
Phenol 2-Chlorophenol 2-Nitrophenol 2-4-Dimethylphenol 2-4-Dichlorophenol 4-Chloro-3-methylphenol 2,4,6-Trichlorophenol	100 100 100 100 100 100	690 BMDL BMDL BMDL BMDL BMDL BMDL			 rie -
2,4-Dinitrophenol 4-Nitrophenol 2-Methyl-4,6-dinitrophenol Pentachlorophenol	500 100 500 100	BMDL BMDL BMDL BMDL			·
			\ <u></u>		, e • ,
-					
			DL = Method Detection Limit DL = Below Method Detection Lim	nit	

Comments			The same of the sa
- Commence			
	-	200	

17711 1 1 1
-CH2M
I BE HILL.
:

VOLATILE COMPOUNDS

GC/MS Report

Analyst W. Dickens

Date of Analysis 11/28/83

		Date of Analysis	
Olient	Reichhold Chemical, Inc.	Laboratory No	4413D
Comple Description	Landfill Solids - Sample Date		

		~~~	
Compounds	MDL ¹ PPM	Conc. ² PPM	
Chloromethane Bromomethane Vinyl Chloride Chloroethane Methylene Chloride Trichlorofluoromethane 1,1-Dichloroethene 1,1-Dichloroethane Trans-1,2-Dichloroethene Chloroform 1,2-Dichloroethane Carbon Tetrachloride Bromodichloromethane 1,2-Dichloropropane Trans-1,3-Dichloropropene Trichloroethylene Benzene Dibromochloromethane 1,1,2-Trichloroethane Cis-1,3-Dichloropropene 2-Chloroethyl vinyl ether Bromoform 1,1,2,2-Tetrachloroethane Tetrachloroethylene Toluene Chlorobenzene Ethyl Benzene Acrylonitrile Acrolein Dichlorodifluoromethane Xylenes*	10 10 10 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	

Comments *Quantitatively estimated.



BASE/NEUTRAL COMPOUNDS

GC/MS Report

Analyst	W. Dickens
Date of Analysis	11/22/83
B 4.0 01	

Client	Reichhold	Chemical,	Inc.
Onorte _			

Laboratory No. _____4413C

Sample Description <u>Landfill Solids - Sample Date 11/10/83</u>

Compounds	MDL ¹ PPM	Conc. ² PPM	Compounds	MDL ¹ PPM	Conc. ² PPM
Bis (2-chloroethyl) ether 1,3-Dichlorobenzene 1,4-Dichlorobenzene Bis (2-Chloroisopropyl) ether Hexachloroethane N-nitroso-di-n-propylamine Nitrobenzene Isophorone Bis (2-Chloroethoxy) methane 1,2,4-Trichlorobenzene Naphthalene Hexachlorobutadiene Hexachlorocylopentadiene 2-Chloronaphthalene Acenaphthylene Dimethylphthalate 2,6-Dinitrotoluene Acenaphthene 2,4-Dinitrotoluene Fluorene 4-Chlorophenyl phenyl ether Diethyl phthalate N-nitrosodiphenylamine ³ 1,2-Diphenylhydrazine ⁴ Dicyclopentadiene	10 10 10 10 10 10 10 10 10 10 10 10 10 1	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	4-Bromophenyl phenyl ether Hexachlorobenzene Phenanthrene Anthracene Dibutyl phthalate Fluoranthene Pyrene Benzidine Butyl benzyl phthalate 2,3,7,8-Tetrachlorodibenzo-p-dioxin Benzo (a) anthracene Chrysene 3,3'-Dichlorobenzidine Bis (2-ethylhexyl) phthalate Di-n-octyl phthalate Benzo (b) fluoranthene Benzo (k) fluoranthene Benzo (a) pyrene Indeno (1,2,3-cd) pyrene Dibenzo (a,h) anthracene Benzo (g,h,i) perylene N-nitrosodimethylamine Bis (chloromethyl) ether	10 10 10 10 10 10 10 10 10 10 10 10 10 1	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL
·			¹ MDL = Method Detection Limit ² BMDL = Below Method Detection Limit ³ Detected as Diphenylamine ⁴ Detected as Azobenzene ⁵ ND = Not Determined		

Comments	



ACID COMPOUNDS

GC/MS Report

Analyst	W. Dickens
Date of Analysis	11/22/83
	. A A

Client	Riechhold Chemical, Inc.	Laboratory No.	4413C
Sample Description	Landfill Solids - Sample Date	11/10/83	

Compounds	MDL ¹ PPM	Conc ² PPM			•	-	. se s
Phenol 2-Chlorophenol 2-Nitrophenol 2-4-Dimethylphenol 2-4-Dichlorophenol 4-Chloro-3-methylphenol 2,4,6-Trichlorophenol 2,4-Dinitrophenol 4-Nitrophenol 2-Methyl-4,6-dinitrophenol Pentachlorophenol	10 10 10 10 10 10 10 50 10	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL					
• • • •							
			ŧ	= Method Detection Limit L = Below Method Detecti			

Comments	 -77 °

LAB ID: 4413 PROJECT #: MG17621.AO

REICHHOLD CHEMICALS ATTN: KIRON SENAPATI RESINS & BINDERS DIVISION

P.O. BOX 1433

PENSACOLA, FLORIDA 32596

Re: Samples received in lab November 11 and 29, 1983. Samples collected at the Gulfport, Mississippi site by CH2M HILL.

				·	Fresh
				-	Filter
	Pond	Pond	Landfill		Cake
Description	Supernate	Sludge	Solids	Leachate	11/29/83
pH (units)	6.2				
EP-Arsenic		<0.01	<0.1		0.12
EP-Barium		3.3	<0.5		2.4
EP-Cadmium		0.008	<0.001	· ·	<0.01
EP-Chromium		0.07	<0.05		0.08
EP-Lead		0.16	<0.08		0.20
EP-Mercury		0.0005	0.0003		<0.0002
EP-Selenium		<0.01	<0.01	·	0.09
EP-Silver	-	<0.05	<0.05		0.023
Total Arsenic	<0.01		<1.0 mg/Kg	0.19	<1 mg/Kg
Total Barium	<0.5				÷
Total Cadmium	0.003		<0.5 mg/Kg	0.006	<0.5 mg/Kg
Total Chromium	<0.05		10.5 mg/Kg	<0.05	5.4 mg/Kg
Total Lead	<0.08		<1.0 mg/Kg	<0.08	<1.0 mg/Kg
Total Mercury	<0.0002		<0.5 mg/Kg	0.0002	<0.5 mg/Kg
Total Selenium	<0.01		<0.5 mg/Kg	<0.01	<0.5 mg/Kg
Total Silver	<0.05		<0.5 mg/Kg	<0.05	<0.5 mg/Kg
Total Aluminum	<1		46420 mg/Kg	,	ee Trans
Toal Antimony	<0.4		<0.5 mg/Kg	<0.04	<0.5 mg/Kg
Total Nickel	0.76		79.1 mg/Kg	<0.04	10.1 mg/Kg
Total Beryllium	<0.03		0.86 mg/Kg	<0.03	0.21 mg/Kg
Total Copper	0.04		18.3 mg/Kg	<0.03	4.9 mg/Kg
Total Thallium	<0.005		<1.0 mg/Kg	<0.01	<1.0 mg/Kg
Total Zinc	0.81		- 320 mg/Kg	0.06	186 mg/Kg
Ammonia-N	790	680		31 .	69,100 mg/Kg
COD	327				
Total Solids (%)		12.7		-	'
Oil & Grease				40	
Priority Organics			**	**	**
Phenol		0.6			

All values expressed as mg/l unless otherwise specified.

jd/LAB/049

cc: Reichhold Chemical Company cc: Mr. Ben Surrapt Reichhold Road Gulfport, Mississippi 39501

Steve Gelman/CH2M HILL

^{**}Data previously submitted.

APPENDIX B



PROJECT NUMBER

MG17621.BO

B-1

SHEET

BORING NUMBER

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

B-1

SHEET

SOIL BORING LOG

Reichhold Chemical Gulfport, MS PROJECT LOCATION LSD=15.82 ft Southern Earth Sciences, Mobile, AL ELEVATION _ DRILLING CONTRACTOR DRILLING METHOD AND EQUIPMENT CME 55 (track mounted) w/hollow stem auger 4/10/84 LOGGER R. H. Goodson 0910 1330 WATER LEVEL AND DATE START FINISH _ STANDARD COMMENTS SAMPLE SOIL DESCRIPTION PENETRATION TEST SYMBOLIC LOG EVATION NAME, GRADATION OR PLASTICITY, DEPTH OF CASING, TYPE AND NUMBER DEPTH BELOW SURFACE RECOVERY RESULTS PARTICLE SIZE DISTRIBUTION, COLOR. DRILLING RATE, 6"-6"-6" DRILLING FLUID LOSS, MOISTURE CONTENT, RELATIVE DENSITY (N) OR CONSISTENCY, SOIL STRUCTURE, TESTS AND INSTRUMENTATION MINERALOGY, USCS GROUP SYMBOL S-1 2-3-3-4 Fn Sand, dk brown to black, w/ organics (humus) 2 S-2 Same as above water sat. Attempted UD 0% recovery 4 Fn Sand, Clayey, 1t. gray @ 5.5 S-3 3~3~3~3 ft orange mottling б 2-5-7-7 Clay, slightly sandy, It. gray Low w/orange mottling to mod plasticity 8 Same UD-5 10 Same Clay, very sandy, lt. greenish s-6 2-3-2-3 gray, low to mod. plast. 12 clay, sl. sandy, lt. gray S-7 4-6-5-6 mod. to high plast., org. mottling 14 s-8 3-3-6-6 Same 16 s-9 2-3-4-7 Same 18 S-10 2-3-4-7 Silt, clayey, mod high plast. gray 20 S-11 3-4-7-10 Same (low mod plast.) 22 Clay, sl. sandy, lt. gray mod-UD-12 high plast. 24 Same S-13 4-6-7-10 Silt, clayey. It gray, low plast 26 Clay, sandy, lt gray, mod-high S-14 2-2-4-10 plast. 28 FN Sand, clayey, lt. gray w/ orange mottling, NP S-15 Thin layer (approx. 25 ft) sandy clay, it gray brown mottling REV 11/82 **FORM D1586**

better grading than above



PROJECT NUMBER

BORING NUMBER

MG17621.BO

B-1

SHEET 2

REV 11/82

FORM D1586

of 2

SOIL BORING LOG

Gulfport, MS Reichhold Chemical LOCATION __ DRILLING CONTRACTOR Southern Earth Sciences, Mobile, AL LSD=15.92 ft ELEVATION __ DRILLING METHOD AND EQUIPMENT CME 55 W/Hollow Stem Auger 0910 1330 R. H. Goodson 4/10/84 START FINISH WATER LEVEL AND DATE. LOGGER STANDARD SOIL DESCRIPTION COMMENTS SAMPLE PENETRATION TEST ELEVATION SYMBOLIC LOG NAME, GRADATION OR PLASTICITY, DEPTH OF CASING, TYPE AND NUMBER RESULTS DEPTH BELOW SURFACE RECOVERY NTERVA DRILLING RATE. PARTICLE SIZE DISTRIBUTION; COLOR, 6"-6"-6" MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL DRILLING FLUID LOSS. (N) TESTS AND INSTRUMENTATION SS 3-3-3-5 FN Sand, clayey, lt. gray w/ 16 sandy clay layer 32 FN Sand, well graded, lt. gray SS 1-1-1-1 17 34 Same w/thin layer (approx..25 SS 3-3-4-10 ft) clayey sand 18 36 Boring to @ 36 ft Installed well No. B-ld screened from 30-35 ft below land surface



PROJECT NUMBER BORING NUMBER

MG17621.BO

B-2

SHEET 1 OF 1

REV 11/82 FORM D1586

PR	DJECT	Reicl	nholë	l Chem			LOCATION				_
ELE	VATION	LSD-	17.26	FT		DRILLING CONTRACTOR	Southern	Earth	Scie	ences, Mobile, AL	_
	LLING ME					w/Mud Rotary			,		
WA	TER LEVEL	. AND DA	TE4	:/18/8		start <u>0830</u>	FINISH _	0915		OGGER R. H. Goodson	_
	1	S	AMPLE		STANDARD PENETRATION	SOIL DESCRIP	TION			COMMENTS	
ELEVATION	DEPTH BELOW SURFACE	INTERVAL	TYPE AND NUMBER	RECOVERY *	TEST RESULTS 6"-6"-6" (N)	NAME, GRADATION OF PARTICLE SIZE DISTRIB MOISTURE CONTENT, REI OR CONSISTENCY, SOI MINERALOGY, USCS GRO	UTION, COLOR LATIVE DENSITY L STRUCTURE	Y . ,	SYMBOLIC	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION	
	1 -		SS	1.5 ppm		Sand, fine, tan		•			
	5 -		SS 2	10.5 ppm		Sand Med to Coarse Tan with slight or	, Sl. Cla	ayey,			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	10		SS 3	1.5 ppm		Same w/4 in. layer staining and cemen	of heavy	y iron	• •	50% recovery	
	15 — -		SS 4	1.5 ppm	WOH	Clay, gray, high p		-		Installed well No. B-2S screened from	-
	- -									7.5-12.5 ft below land surface	-
•	-							-			_
	-					*HNu headspace re	adings	\ \ \ \			



PROJECT NUMBER	BORING NUMBER
MG17621.BO	∄ B−3

SHEET 1 OF 1

PRO	OJECT	Re	ichho	ld Ch	nemicals	icals			LOCATION Gulfport, MS					
ELE	EVATION	LSD=	20.30	ft.		DRILLING C	ONTRACTOR			th Sc	iences	, Mob	ile, AL	
	LLING ME				~	w/Mud Ro							<u> </u>	. <u> </u>
WA	TER LEVE	AND D	ATE4	/16/8	34	START	1300	FINISH	1349		LOGGER	R. H	. Goods	on
			SAMPLE		STANDARD PENETRATION		SOIL DESCRIP	TION ,				СОММ	ENTS	
ELEVATION	DEPTH BELOW SURFACE	INTERVAL	TYPE AND NUMBER	RECOVERY	TEST RESULTS 6"-6"-6" (N)	PARTICL MOISTUR OR CON	GRADATION OF E SIZE DISTRIBU RECONTENT, REL SISTENCY, SOIL LOGY, USCS GRO	JTION, COL ATIVEDENS L STRUCTU	OR, SITY IRE,	SYMBOLIC LOG	DF DF TE	PTH OF C RILLING R RILLING FI STS AND STRUMEN	ATE, LUID LOSS,	
	2 -		ss-1	3	8-12-13		sl. claye orange mot		gray _	•••	HNu Ba	ackgro	und = 1	4
	5 1 1		SS-2	8	5-5-8		<u>Clayey</u> , l nd red mot		- - w/ - -	<u>/:/:</u>				
	10 -		ss-3	320	20-42-50	Same - Le	ess Clay		- 		HNu = mud t		opm abov	<i>7</i> e
•	15 —		SS-4		2-1-2	Boring to	o recovery o @ 16.5 f		- - - -		mud a insta B-3S	nd cut 11ed V screer ft be	neen on tings Well No ned fro Plow la	m -
•	-											REV 11/	82 FORM	Disec



PROJECT NUMBER

BORING NUMBER

MG17621.BO

B-4

SHEET 1 OF 2

REV 11/82

FORM D1586

SOIL BORING LOG

Reichhold Chemicals Gulfport, Ms PROJECT LOCATION _ ELEVATION <u>LSD=16.11</u> ft. ____ DRILLING CONTRACTOR Southern Earth Sciences, Mobile, AL DRILLING METHOD AND EQUIPMENT CME 55 W/Mud Rotary WATER LEVEL AND DATE 4/11-4/12/84R. H. Goodson 1344 START **FINISH** LOGGER STANDARD COMMENTS SAMPLE SOIL DESCRIPTION PENETRATION TEST ELEVATION NAME, GRADATION OR PLASTICITY. SYMBOLIC LOG DEPTH OF CASING. RESULTS TYPE AND NUMBER DEPTH BELOW SURFACE **RECOVER** PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY DRILLING RATE, NTERVAL 6"-6"-6" DRILLING FLUID LOSS, OR CONSISTENCY, SOIL STRUCTURE,
MINERALOGY, USCS GROUP SYMBOL (N) TESTS AND INSTRUMENTATION 2-4-3 Water from onsite ss-1 FN Sand, black at surface w/ humus, orange @ 1.0 ft sl. deep well 2 clayey SS-2 9-14-14 FN Sand, sl. clayey, lt. gray 5 w/orange mottling . . . 10 SS-3 1-1-1 Clay, gray, high plast. 15 3-4-5 SS-4 Clay, sandy, lt. greenish gray, high plast. 20 Silt, clayey, sl. sandy, SS-5 3-4-6 gray, low to mod. plast. 25 SS-6 6-6-8 Silt, clayey, sl. sandy, gray, low to mod. plast. 30



PROJECT NUMBER

BORING NUMBER

MG17621.BO

B-4

SHEET 2 OF 2

REV 11/82

FORM D1586

SOIL BORING LOG

Gulfport, MS Reichhold Chemical PROJECT . LOCATION LSD=16.11 ft. Southern Earth Sciences, Mobile, AL ELEVATION _ _ DRILLING CONTRACTOR _ DRILLING METHOD AND EQUIPMENT CME 55 w/mud rotary - 6" bit WATER LEVEL AND DATE 4/11-12/84 R. H. Goodson 1044 _ FINISH START LOGGER STANDARD COMMENTS SAMPLE SOIL DESCRIPTION PENETRATION TEST SYMBOLIC LOG ELEVATION DEPTH OF CASING. NAME, GRADATION OR PLASTICITY. RESULTS TYPE AND NUMBER RECOVERY PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL DEPTH BELOW SURFACE DRILLING RATE, NTERVA DRILLING FLUID LOSS, 6"-6"-6" (N) **TESTS AND** INSTRUMENTATION ss-7 5-7-8 Silt, clayey, lt. gray and brown 31 marbled, NP 35 ss-8 7-11-11 Sand, clayey & clay, sandy interlayered, lt. gray, clay low to mod plast. 40 5-5-7 SS-9 Same Driller reports sand @ 44 ft 45 11-12-15 FN Sand, clayey, lt. gray less SS-10 clay than above 50 Same w/2" sandy clay layer SS-11 7-14-14 Installed Well No. B-4d screened from 45-50 ft below 55 land surface ss-12 10-12-12 Same SPL from 60-61.5' boring to @ 61.5 ft. Same w/sandy clay from 61-61.5 6-9-12 ss-1B



1	PROJECT NUMBER	BORING NUMBER				
ļ	MG17621.BO	B - 5	SHEET	1	OF	1

PRO	DJECT	Reic	hhold	l Chen	nical	LOCATION Gulfport, MS						
ELE	VATION	LS	D=19.	97 ft	· ·	DRILLING CONTRACTOR Southern Earth Sciences, Mobile, AL						
	LLING ME					w/mud rotary						
WA [*]	TER LEVEL	AND DA	ATE	4/13	3/84	START 1010 FINISH 1330 LOGGER R. H. Goodson						
ſ			AMPLE		STANDARD PENETRATION	SOIL DESCRIPTION COMMENTS						
ELEVATION	DEPTH BELOW SURFACE	INTERVAL	TYPE AND NUMBER	RECOVERY *	TEST RESULTS 6"-6"-6" (N)	NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION						
	1 -		s-1	350 - 400	10-13-13	FN Sand, sl. clayey, tan, dry						
	5 -		S-2	300	13-11-10	Same						
	10		S-3	150	18-20-21	Same - wet Driller reports clay at about						
	- 15 — -		S-4	130	WOH	Clay, gray, high plast. boring TD at 16.5 ft. Installed well No. B-5s screened from 7.5-12.5 ft below						
	-					Drilling mud headspace = 400 ppm land surface						
	-					-						
•	-											
	-					*HNu headspace readings						
٠.]				REV 11/82 FORM D158						



PROJECT NUMBER	BORING NUMBER			-
	1 n cc	oueer 1	05 7	

SOIL BORING LOG

REV 11/82 FORM D1586

PRO	JECT	Reich	hold	Chem	ical	<u></u>	LOCATION	Gulf	ort,	MS
ELE	VATION	LSD	=21.1	.8 ft	· <u> </u>	DRILLING CONTRACTORSC				
DRI	LLING ME	THOD AI	ND EQUI	PMENT.	CME 55	w/mud rotary				
WA.	TER LEVE	L AND D	ATE	4/12	/84	STARTSTART	_ FINISH _	1605		LOGGER R.H. Goodson
ſ			SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTI	ON			COMMENTS
ELEVATION	DEPTH BELOW SURFACE	INTERVAL	TYPE AND NUMBER	яесоуеву <mark>.</mark>	TEST RESULTS 6"-6"-6" (N)	NAME, GRADATION OR I PARTICLE SIZE DISTRIBUT MOISTURE CONTENT, RELA' OR CONSISTENCY, SOIL MINERALOGY, USCS GROU	TON, COLOF TIVE DENSIT STRUCTURI	₹, Y	SYMBOLIC LOG	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	2 -		SS-1 -SS-2	28	15-9-5 15-6-6- 12	Upper 2 in resin Sand, clayey, orange Same (dry)	e		1.1.	HNu = 60 ppm dry open hole 1 ft. above HNu = back- groud (22-2.4 ppm)
	6 -		SS-3 SS-4	400	8-8-9-8 7-8-11-1	Same lt. gray w/ora: Same Sand, white to lt.		_	/;/ <u>;</u>	- HNu, 10-20 ppm
	8 - 10 -		SS-5	350	18-21-31 36	Sand, med to cse, sl orange	- ;-	-	• • • •	off mud tub -
	12 -		ss-6 ss-7		18-22-31 36 6-3-1-5	Same Clay, gray, high pl boring TD @ 14 ft.	ast.			2" Transition zone - orange-clayey _
-	-					*HNu headspace read	dings	- - - -		
		7	1	1			•]	



PROJECT NUMBER
MG17621.BO
B-6d
SHEET
OF

SOIL BORING LOG

REV 11/82 FORM D1586

											, MS	
ELE	VATION	LSD=	=21.1	4 ft.					th Sciences, Mobile, AL			
DR	LLING ME	AA DOHT	ID EQUI	PMENT_	CME 55	w/mud rotar	cy	! !	··			
WA	TER LEVEL	. AND DA	TE	4/17/	′84	STARTC)820 _{FIN}	ISH	1514		OGGER R. H. Goodson	
		s	AMPLE		STANDARD PENETRATION	so	IL DESCRIPTION				COMMENTS	
ELEVATION	DEPTH BELOW SURFACE	INTERVAL	TYPE AND NUMBER	RECOVERY *	TEST RESULTS 6"-6"-6" (N)	PARTICLE SIZ MOISTURE CO OR CONSIST	DATION OR PLAS E DISTRIBUTION, INTENT, RELATIVE ENCY, SOIL STRU , USCS GROUP SY	COLOR, DENSITY DCTURE,		SYMBOLIC LOG	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION	
	5 _					Washed to 10 pushed 8" ca mately 15.5" Drilled out weight 6" 1	asing to ap	proxi-	lling		HNu back = 2-3 ppm Breathing zone @ back after setting 8"	
	- - 10 - -					on cuttings,			- - - -		-	
	15 _ -										- 	
	- 20 — - -		ss-1	3.0 ppm	7-10-14	Clay, lt. g	ray mod. to	high	- - - - -		- - -	
•	- 25 - - -		SS-2	10.0 ppm	13-15-20	Same			- - - -		-	
	30 _								: 			



PROJECT NUMBER BORING NUMBER

MG17621.BO

B-6d

SHEET 2

OF 4

PRO	DJECT				nemicals	LOCATION Gulfport, MS Southern Earth Sciences, Mobile, AL							
ELE	VATION	LS	D-21.	.14 ft		DRILLING CO	NTRACTOR _	Southern	Earth	Scie	nces, Mob	lle,	AL
DRI	LLING ME	THOD A	ND EQU	PMENT.	CME 55	w/mud rot				<u> </u>			9. 573
WA	TER LEVEL	AND D	ATE	4/17,	/84	START	0820	FINISH	1514		LOGGER R. 1	I. Go	oodson
ſ		,	SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION					co	MMENT	s
ELEVATION	DEPTH BELOW SURFACE	INTERVAL	TYPE AND NUMBER	яесолея	TEST RESULTS 6"-6"-6" (N)	PARTICLE MOISTURI OR CONS	E SIZE DISTRIE ECONTENT, RE SISTENCY, SO	OR PLASTICITY BUTION COLOR ELATIVE DENSIT BUL STRUCTURI ROUP SYMBOL	٦, Y	SYMBOLIC LOG	DEPTH O DRILLING DRILLING TESTS AI INSTRUM	RATE FLUIC ND	LOSS.
	31 -		SS-3	3.0 ppm	8-9-10	Silt, cla plast.	<u>yey</u> , gre	enish gra	y, löw -	ЩТ	HNu BKD = @ 1000 Breathing		e and
	35		ss-4	3.8 ppm		Same Low to mo	od. plast	•			mud tub @		
	40 -		ss-5	7.0 ppm	6-9-11	Same							-
	45 — - -		SS-6	1.4 ppm	4-9-12			: clay zon id friable					-
	50 <u>-</u> - - -		ss-7	4.8 ppm	6-9-15	Same			- - - -				-
•	- 55 - - -		SS-8	3 13.2 ppm	2 7-8-8	mod. to	high plas	lt. gray st. w/2" r near to	**				-
	60-							· !					
				<u></u>		-1					REV	11/82	FORM D1586



PROJECT NUMBER BORING NUMBER

MG17621.BO

B-6d

SHEET 3 OF 4

PRO	OJECT	Re	ichho	old Cl	nemicals		LOCATION		
ELE	EVATION					DRILLING CONTRACTOR _	Southern Ea	arth Scie	ences, Mobile, AL
DR	ILLING ME	A DOHT	ND EQU	IPMENT.	CME 55 v	v/mud rotary	• !		
WA	TER LEVE	AND D	ATE	4/17,	/84	STÄRT _0820	FINISH	514	LOGGER R. H. Goodson
			SAMPLE		STANDARD PENETRATION	SOIL DESCRI	PTION		COMMENTS
ELEVATION	DEPTH BELOW SURFACE	INTERVAL	TYPE AND NUMBER	RECOVERY	TEST RESULTS 6"-6"-6" (N)	NAME, GRADATION OF PARTICLE SIZE DISTRIEM MOISTURE CONTENT, REOR CONSISTENCY, SOMINERALOGY, USCS GRADATION OF CONSISTENCY, SOMINERALOGY, USCS GRADATION OF CONSISTENCY OF C	BUTION, COLOR. ELATIVE DENSITY DIL STRUCTURE.	SYMBOLIC LOG	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	61 -		ss-9	7.8 ppm	11-14-16	Same		- <u>////</u>	
	65 — - -		ss- 10	1.4 ppm	10-12-14	Silt, clayey w sa greenish gray low		· · · · · · · · · · · · · · · · · · ·	-HNu = 7 ppm on SPL - @ 1324 hrs after _ .sitting - 1.5 hrs
	- 70 - - -		ss- 11	3.9 ppm	5-6-7	Same, less clay,	NP	-	-
	- 75 - - -		SS- 12	5.0 ppm	6-8-9	Same, somewhat li w/orange mottling streaks			HNu = 10.5 on sample @ 1320 hrs after sitting approx. 10 _ min. HNu = bkd over mud
	- 80 – - -		ss- 13	1.5 ppm	6-8-10	Same		-	tub and breathing _ zone
•	85 ⁻		SS- 14	2.8 ppm		Same w/0.5 ft si	lty sand lay	yer -	- - - -
٠.	90 -								REV 11/82 FORM D1586
			-				-	. 2	



PROJECT NUMBER

BORING NUMBER

MG17621.BO

B-6d

SHEET 4

OF 4

PRO	DJECT	Keı	.cnno.	La Che	emicals			LOCATION _					
ELE	VATION					DRILLING CO		Southern	Earth	Scl	ences,	Mobil	e, AL
DRI	LLING ME	THOD A	ND EQU		·	w/mud rota		1					
WA	TER LEVE	AND D	ATE	4/1	7/84	START	- 0820	FINISH	1514		LOGGER _	R. H.	Goodson
1			SAMPLE		STANDARD PENETRATION		SOIL DESCRIP	rion !				COMMEN	TS
ĕ	111	L	٥	34	TEST RESULTS	NAME, GI	RADATION OF	PLASTICITY.		ပ္	DEP ⁻	TH OF CAS	ING,
ELEVATION	DEPTH BELOW SURFACE	INTERVAL	TYPE AND NUMBER	RECOVERY	6"-6"-6"			ITION, COLOR, ATIVE DENSITY	:	SYMBOLIC LOG		LING RATE LING FLUI	
	URE	Ξ	YPE	8	(N)	OR CONS		. STRUCTURE,		V.W.	TEST	S AND RUMENTA	
-	വരം	-	⊢Z	ш.		MINERALC	7G1, 05C5 GAC	UP STIVIBOL		5 _1	11401	NUMENTA	HON
į	91 -		ss-	8.5	7-8-9	Same w/0.	5 ft grav	gilty sa	nd				
	7.	-7	15	ppm	, 0, 5	layer and				114			
1	-			1			-		1				-
ı	_							*	4				_
l							*	:					_
]			!					
	95 —					G1	3 3		-	1///	Instal]	Low Bol	- No
	_		SS- 16	1.3		Clay, san				4///	B-6d so		
			170	ppm		w/gray cl							w land -
						, , , 92 02			ļ		surface		
	-	1						i		!			_
	-			ł				!	-				-
	_			1				1					
		ļ											_
	_	1							_				-
	-							İ	-				-
	-	-						ļ					_
	Ì.]		1				1	_				<u>-</u>
	-	1	ĺ						-				
	-	1			1			8	-				-
									_				-
								a to head different and the state of the sta					•
	•	1							_				•
		1			}			;	-				-
	_	1			į			1	_				
									_				
]							 					•
]	1							-	1			•
		1							-	1			
		1							_	1			•
		1						į					
		1							_	1			_
	-	-						!	-	1			
		1							_	-			
								3 2 2					
	1	7					<i>₽</i> ~,		•]			
		-					•	1	• -	1			
	-	4							_	1			
	<u> </u>	.1									<u> </u>	REV 11/82	FORM D1586

PERMEABILITY TEST RESULTS

REICHHOLD CHEMICALS, INC. GULFPORT, MISSISSIPPI OUR JOB NUMBER 84-106

Boring No.	Sample No.	Visual Classification	Moisture %	Dry Density (Pcf)	K (<u>cm/sec</u>)
B-1	UD-5	Gray Clay	36.0	88.0	4.23x10 ⁻⁷
B-1	UD-12	Gray Clay with Sand Seams	32.4	91.4	5.49x10 ⁻⁷

Falling head permeability tests were performed according to the general procedures outlined in the manual entitled "Laboratory Soils Testing" prepared by the U.S. Army Engineer Waterways experiment station. The samples were tested in the Shelby Tube.



April 26, 1984

CH2M Hill 807 South McDonough Street Montgomery, AL 36104

ATTENTION: Mr. Robert H. Goodson, CPG

Hydrogeologist

SUBJECT: Lett

Letter of Trasmittal

Permeability and Grain

Size Data

Reichhold Chemical Our Job No: 84-106

Dear Bob:

Attached please find Permeability and Grain Size data for the subject project. If you have any questions concerning this data, please call.

Very truly yours,

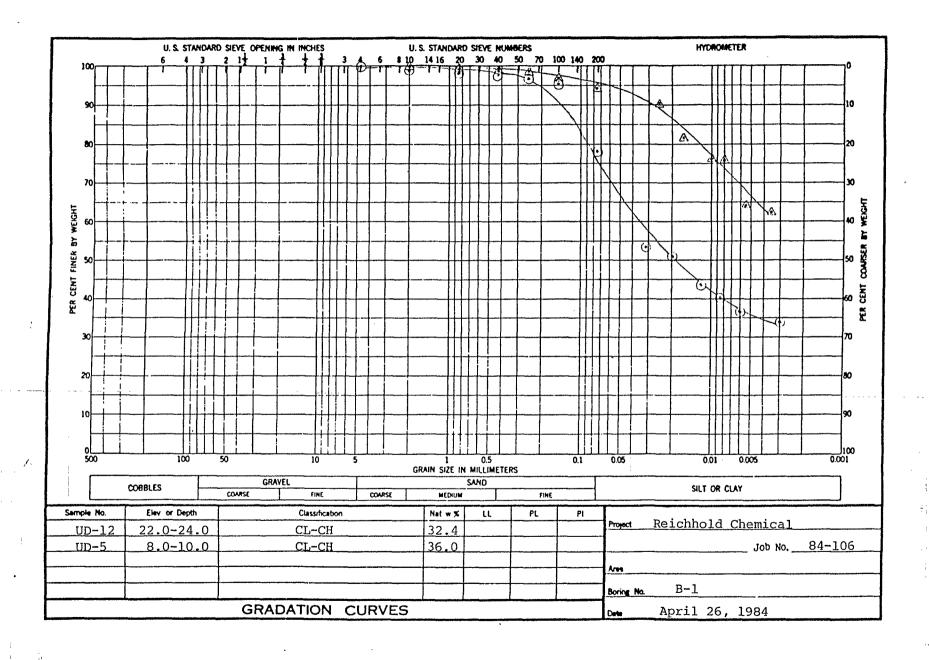
SOUTHERN EARTH SCIENCES, INC.

William H. Brenner

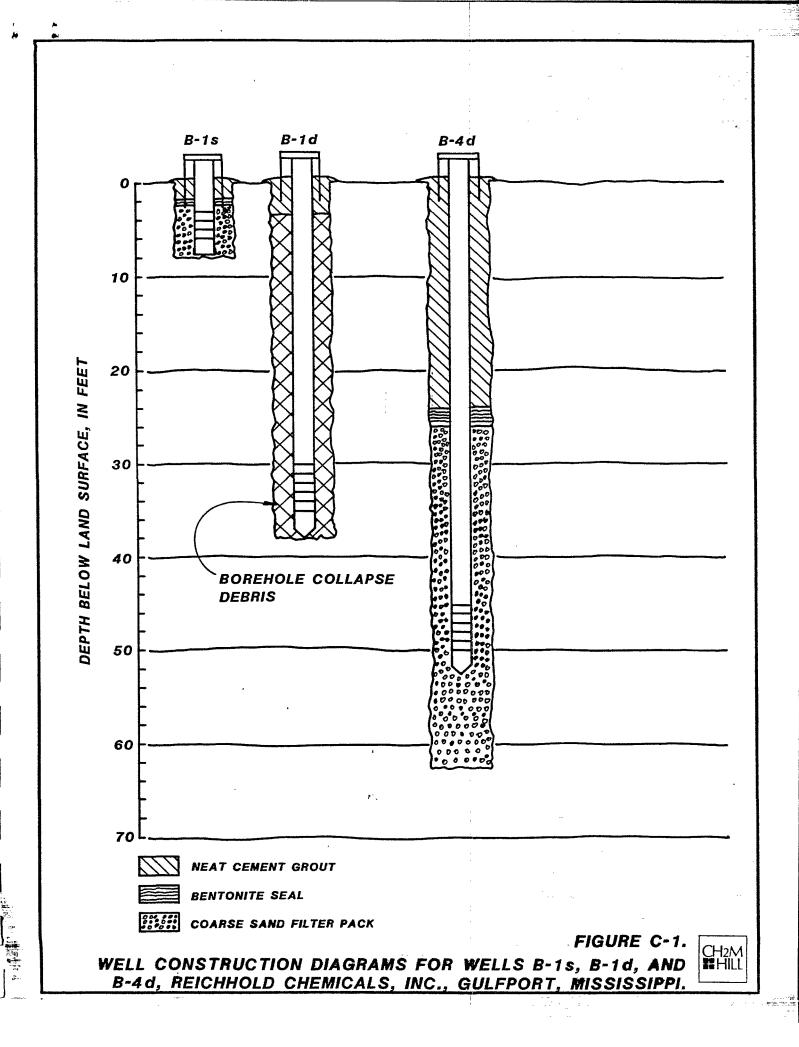
Engineering Geologist

WHB/bb

attachments



APPENDIX C



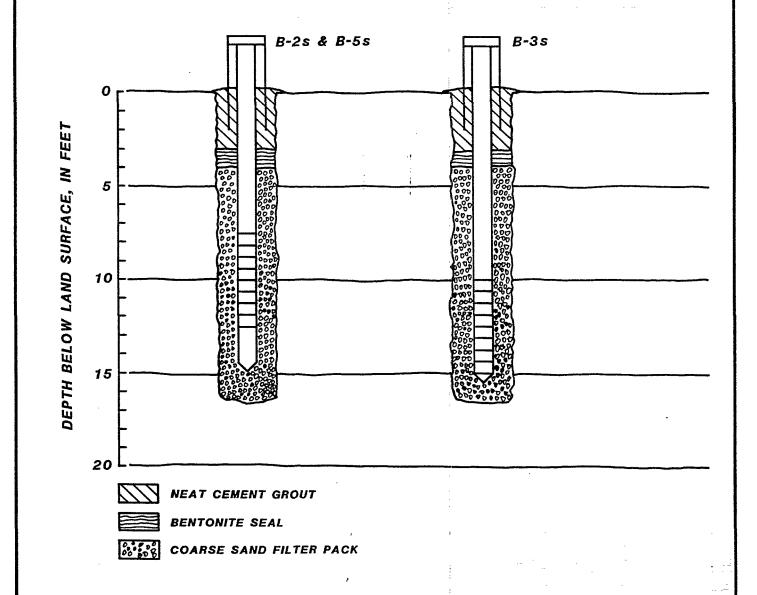
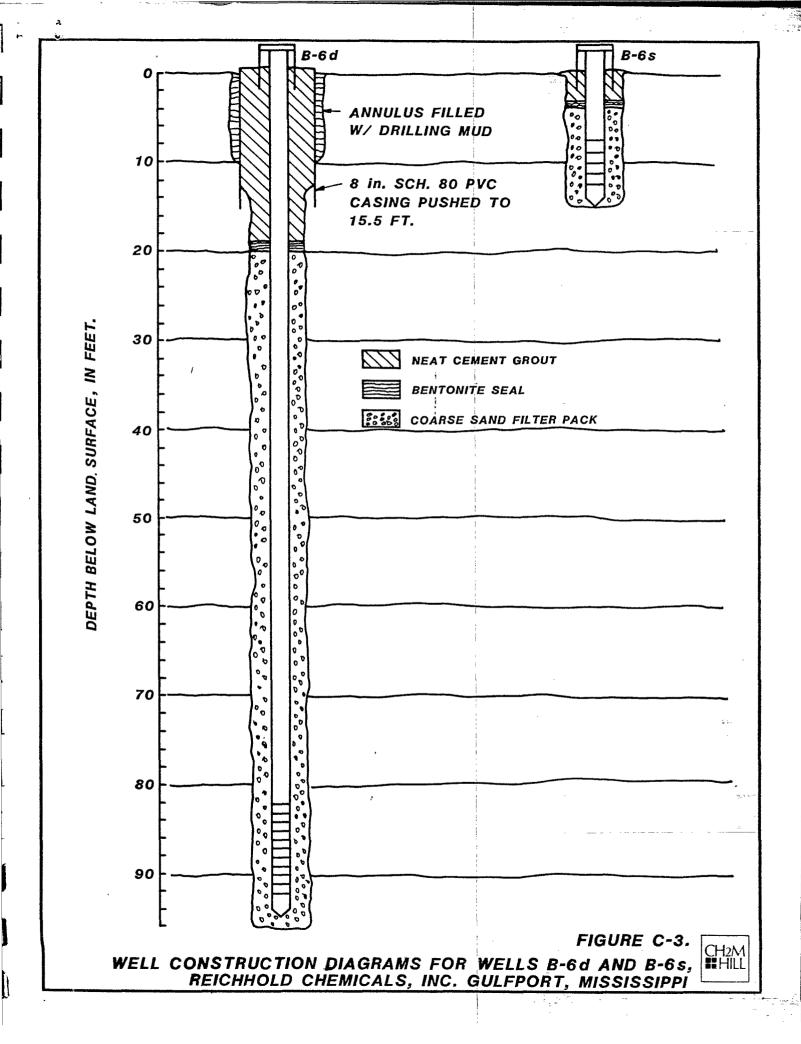


FIGURE C-2.
WELL CONSTRUCTION DIAGRAMS FOR WELLS B-2s, B-3s, AND
B-5s, REICHHOLD CHEMICALS, INC., GULFPORT, MISSISSIPPI.





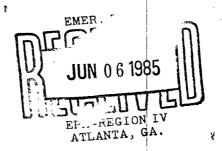
CONTAMINATION ASSESSMENT OF THE SHALLOW AQUIFER

REICHHOLD CHEMICALS, INC. GULFPORT, MISSISSIPPI



OCTOBER, 1984

MG176621.CO



CONTAMINATION ASSESSMENT OF THE SHALLOW AQUIFER

REICHHOLD CHEMICALS, INC. GULFPORT, MISSISSIPPI

Ву

CH2M HILL 807 South McDonough Street Montgomery, Alabama 36104

MG17621.CO OCTOBER, 1984

TABLE OF CONTENTS

		,	PAGE
INTR	ODUCTION	upatra de la companya	1
PREVIOUS WORK			1
FIELD INVESTIGATION PROCEDURES		a <u>S</u> olativa o S ^{ola} tawa	2
	Well Installation Sampling Procedures		2 4
RESU:	LTS		9
TABL:	<u>E</u>	. · · · · · · · · · · · · · · · · · · ·	
1.	Well Construction Characterist	ics	6
2.	Well Sampling Data, August, 19	84	7
3.	Summary of Inorganic Water Qua August, 1984, Groundwater Samp	lity Data, les	13
4.	Summary of Selected Compounds, August, 1984, Groundwater Samp	April and les	16
FIGURE			
1.	Map Showing Location of Monito	r Wells	3
2.	Typical Shallow Well Construct	ion Diagram	5
3.	Map Showing Groundwater Gradien Directions in the Shallow Aqui	nts and Flow fer	11
4.	Map Showing Spatial Distribution Parameters in Groundwater	on of Inorganic	13
5.	Map Showing Spatial Distribution Organic Compounds in Groundwate	on of Selected	
APPE	NDICES		
Α.	Soil Boring Logs	• • • • • • • • • • • • • • • • • • • •	
В.	EM Conductivity Survey		-
C.	Laboratory Analytical Sheets		

CONTAMINATION ASSESSMENT IN THE SHALLOW AQUIFER REICHHOLD CHEMICALS, INC. GULFPORT, MISSISSIPPI

INTRODUCTION

CH2M HILL has been engaged by Reichhold Chemicals, Inc. (RCI) to identify the source and extent of groundwater contamination at the RCI plant in Gulfport, Mississippi. In May of 1984, a report entitled "Groundwater Monitoring Network and Preliminary Contamination Assessment - Reichhold Chemicals, Inc. - Gulfport, Mississippi" by CH2M HILL was submitted to RCI and Mississippi Department of Natural Resources (MDNR). This report summarized initial investigation at the site. Subsequent discussions between RCI, CH2M HILL, and MDNR resulted in additional work to identify the source and extent of groundwater contamination. The scope of this additional work includes:

- 1. Conduct an electromagnetic conductivity survey to delineate the landfill contaminant plume.
- 2. Install 8 additional shallow monitor wells.
- 3. Sample all 16 monitor wells and analyze water samples for volatile organics, base/neutral extractable organics, acid extractable organics, pH, conductivity, nickel, and zinc.

PREVIOUS WORK

The initial investigation at this site included drilling of seven borings ranging in depth from 16.5 to 96.5 ft. and constructing eight monitor wells ranging in depth from 8 to 92.5 ft. All wells were sampled and analyzed for pH, conductivity, total organic carbon (TOC), total Kjeldahl

nitrogen (TKN), volatile organics, base/neutral extractable organics, and acid extractable organic compounds.

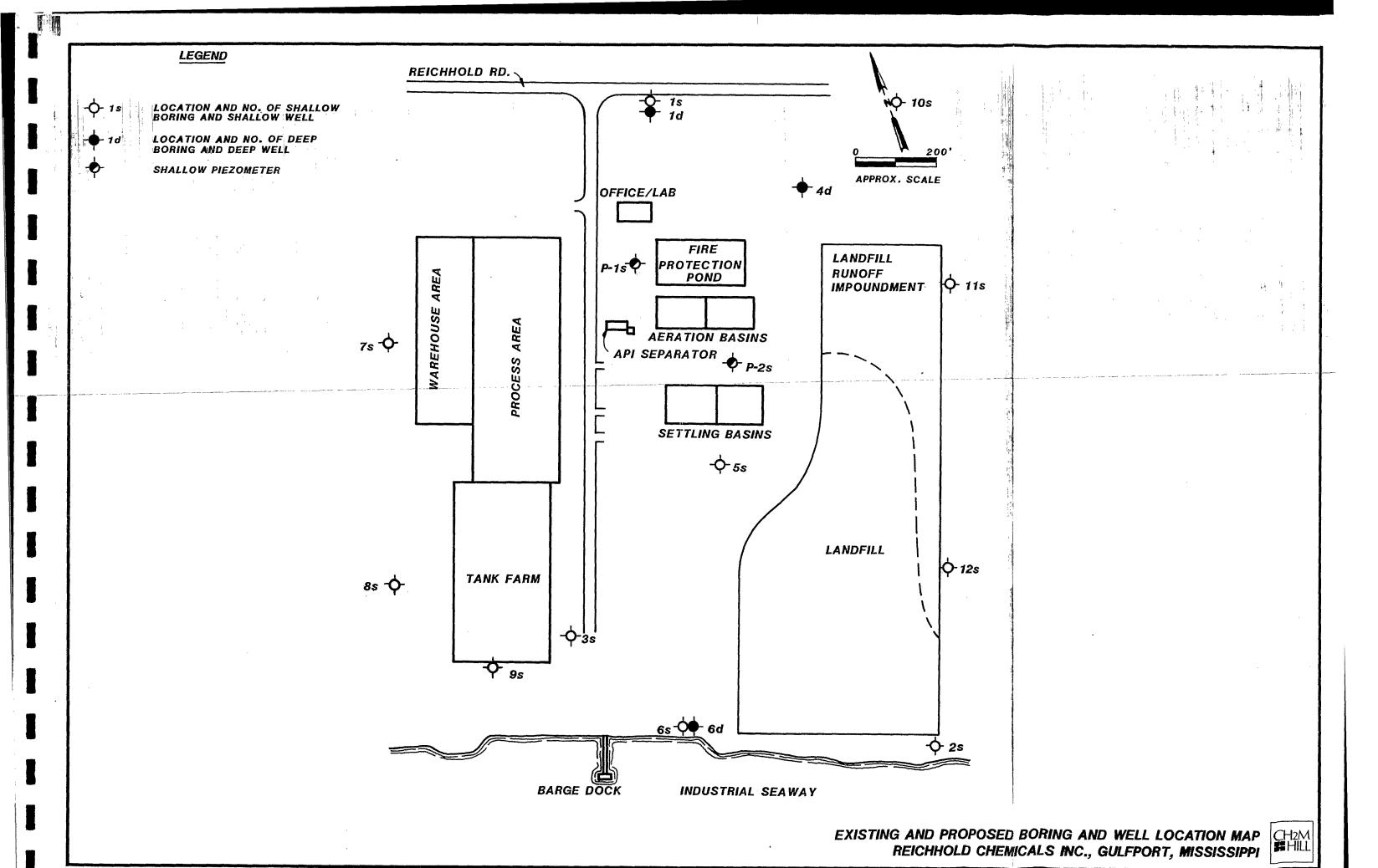
The soil borings revealed a shallow geologic framework comprised of a thin surficial sand underlain by clays and plastic silts. Beneath this layer of clay and silt occurs a zone of sand and non-plastic silts. A water table or unconfined aquifer occurs in the shallow sand and the lower sand is a confined aquifer. The water table aquifer exhibits an apparent mounding effect near the center of the site possibly due to induced recharge from the fire protection pond and the landfill runoff impoundment.

Contamination appears to be limited to the water table aquifer. No quantifiable concentrations of contaminants were found in the deep wells. Significant levels of organic and inorganic contamination were found in shallow wells in the vicinity of the landfill and tank farm. Elevated values of electrical conductivity of water samples from near the landfill indicated that the contaminant plume from the landfill could be mapped using remote sensing methodology. The technique chosen was an electromagnetic conductivity survey.

FIELD INVESTIGATION PROCEDURES

Well Installation

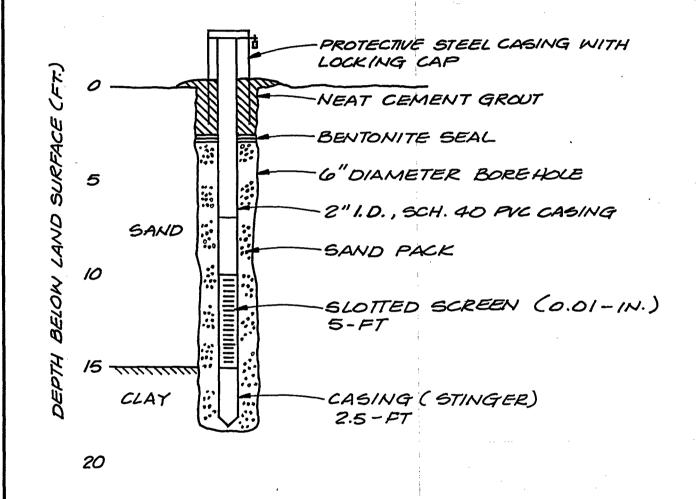
Eight shallow (<30 ft) wells were installed at sites shown on Figure 1. Each well was initiated by drilling an exploratory boring to determine the optimum monitoring zone. Mud rotary drilling methods were utilized to advance the boring. Soil samples were collected on 5-ft intervals using a standard split-spoon sampler. Soil samples were classified in the field by a hydrogeologist and monitored for organic vapors using a photoionization meter. Boring logs are included in



Appendix A. Borings were terminated upon encountering a low permeability clay which indicated the base of the shallow aquifer. Wells were installed in the same borehole as shown in the typical well construction diagram (Figure 2). Dimensions of all monitor wells are given in Table 1. Drilling equipment coming in contact with drilling fluids, such as the mud pump, hoses, drill pipe and bits were cleaned between borings to prevent cross contamination. Cleaning was accomplished with a tri-sodium phosphate detergent solution followed by a clean water rinse.

Sampling Procedures

All 16 monitor wells were sampled between August 27 and 30, 1984. Groundwater samples were analyzed for organic compounds by GC/MS including volatile, acid extractable and base/neutral extractable fractions. Selected inorganic parameters were also determined, including nickel, zinc, chloride, sulfate, ammonia, nitrate and Total Kjeldahl Nitrogen (TKN). Wells were opened and allowed to vent, after which static water level and total well depth measurements were made using an electric or steel tape. Following depth measurements, the well was purged of a sufficient volume to draw water from a radius of 1-ft. Purge volumes and other sampling data is given in Table 2. During well purging, field measurements of pH and conductivity were collected. Shallow wells (those with a total depth of less than 30 ft) were purged with a Teflon bailer or peristaltic pump fitted with Tygon tubing. To reduce the potential for cross-contamination between wells, new tubing and bailer rope was used for each well and all equipment (bailers, measuring tapes, probes, etc.) was cleaned after each use. Deep wells (greater than 30 ft in total depth) were purged with a bladder-type submersible pump which was cleaned after each use.



TYPICAL SHALLOW WELL DESIGN
REICHHOLD CHEMICALS, INC., GULFPORT, MISSISSIPPI

CH2M ■■HILL

Table 1. Summary of Well Construction Data
Reichhold Chemical, Inc., Gulfport, Mississippi

Well	Land Surface Elev (ft-MSL)	Total Depth Belöw MP (ft)	Top of PVC Elev (ft-MSL)	Top of Steel Elev (ft-MSL)	Top of Screen Elev (ft-MSL)	Screen Length (ft)
B-1s	15.72	10.0	18.24	18.54	13.2	3
B-1d	15.82	40.0	18.18	18.32	-16. 7	5
B - 2s	17.26	17.5	20.06	20.30	7.3	5
B-3s	20.30	17.5	22.77	23.01	7.8	5
B-4d	16.11	55.0	18.40	18.79	-31.4	5
B-5s	19.97	17.5	22.91	22.94	10.0	5
B - 6s	21.18	17.5	23.98	24.03	11.2	5
B-6d	21.14	97.5	24.07	24.15	- 63.9	10
B-7s	21.09	20.0	23.35	23.17	10.9	5
B-8s	23.10	20.0	25.79	25.68	13.3	5
B - 9s	23.31	20.0	25.73	25.76	13.2	5
B-10s	12.96	22.5	14.90	14.93	-0.1	5
B-11s	21.36	20.0	23.83	23.99	11.33	5
B-12s	18.91	20.0	21.04	21.04	8.54	5
P-1s	17.80	15.0	20.28	20.33	12.78	5
P-2s	17.72	15.0	20.14	20.99	12.64	- 5
	* * * * * * * * * * * * * * * * * * *	- • -	-	-		

Table 2. Well Sampling Data, August, 1984

	Purge	Volume			Field	
Well	<u></u>	-	-	Field	Cond.	Date
No.	<u>Gal</u>	<u>cv</u> ¹	Method	pН	umhos/cm	Sampled
î.			2		. *	
ls	14	13.1	P ² s ³	4.7	110	8/28
1d	24	5.1	ຮັ	4.9	105	8/28
2s	24	13.1	P	5.4	1,640	8/30
3s	24	20.5	P	5.7	210	8/29
4d	24	3.4	S	5.9	240	8/28
5s	24	13.2	P,	6.0	1,440	8/29
6s	26	4.8	P B ⁴	4.5	>20,000	8/30
6đ	48	3.8	S	5.8	146	8/29
7s	24	8.5	P	4.1	69	8/28
8s	24	11.0	P P	4.3	103	8/28
9s	24	19.1	P	4.8	160	8/29
10s	24	7.3	P	4.3	440	8/28
lls	24	11.8	P/B	4.5	4,100	8/28
12s	24	8.8	В	4.4	1,970	8/30
P-1s	24	12.1	P	5.9	390	8/29
P-2s	24	12.8	P	5.8	1,210	8/29
					-	

¹ CV = Casing volume.

All samples collected with teflon bailer.

jđ/BG/051

P = Peristaltic-type pump.

S = Submersible bladder-type pump.

B = Bailer

All samples were collected using Teflon bailers and new Sisal-Hemp rope. The first two bailer volumes from each well were discarded to further reduce the possibility of cross contamination. Samples were poured directly into precleaned and prelabeled sample bottles which were subsequently decontaminated and iced immediately after sample collection. Samples for dissolved metals were filtered and preserved immediately upon receipt by the lab. Samples were shipped daily by bus to the CH2M HILL environmental laboratory in Montgomery, Alabama.

RESULTS

The scope of work for this phase of the groundwater investigation at the RCI plant in Gulfport included the following activities:

- o Remote sensing survey (Electromagnetic (EM) conductivity survey),
- o Soil borings and well installation;
- o Water level data collection, and
- o Groundwater sampling and analysis.

From these data collection activities, observations and conclusions relating to the site-specific hydrogeologic regime have been summarized.

The EM conductivity survey provided information on the inorganic leachate plume emanating from the landfill. The results of the survey were presented in a Technical Memorandum (Appendix B) delivered to the MDNR on September 5, 1984. An inorganic contaminant plume was identified and is believed to be the result of dissolved ammonia and chloride leaching out of filter cake wastes placed in the landfill. The plume is apparently migrating towards the Industrial Seaway in the shallow aquifer. Organic compounds leaching out of the landfill may have been transported by the same mechanism. The conductivity survey indicated little if any movement of inorganic contaminants to the east of the landfill.

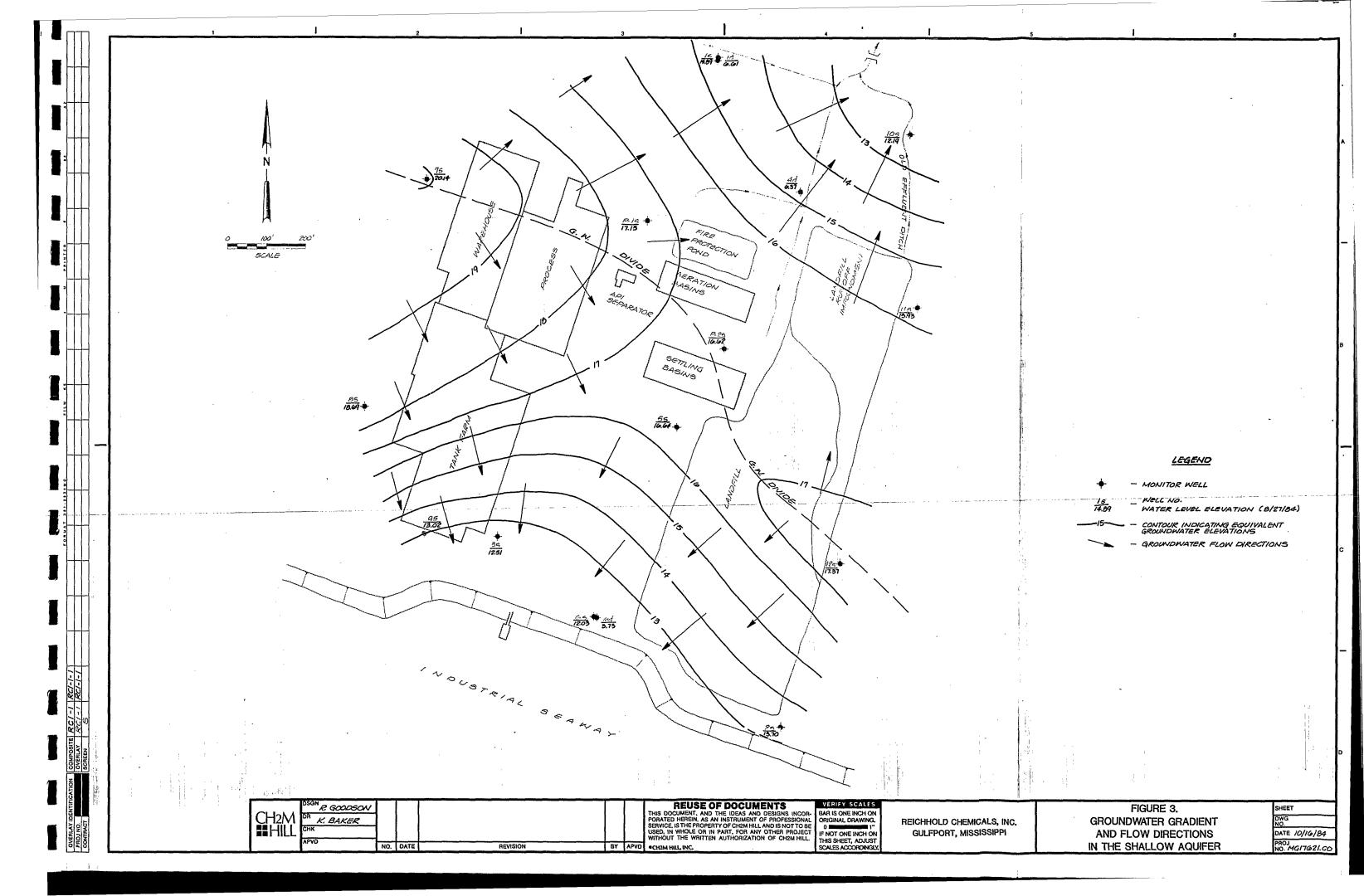
The second set of soil boring data was consistent with that from the initial set of borings, which had revealed a relatively thin sand overlying a low permeability clay.

Clay was encountered in every boring at the site and forms the base of the shallow aquifer which occurs within the upper sand.

Water levels in all monitor wells were measured on August 27, 1984. From these elevations, groundwater flow gradients and directions were determined and are shown in Figure 3. Water level elevations are presented for all wells, however only water level data for the shallow aquifer was contoured to determine flow gradients (piezometric map) and flow directions. Wells completed in the aquifer beneath the clay have insufficient spatial distribution to be able to map the piezometric surface and determine flow directions. Data from the three wells tapping this aquifer indicate a southerly flow component existed both in the April and August measurements.

The groundwater gradient in the shallow aquifer shows high levels east of the landfill and west of the plant facilities possibly indicating areas of preferred recharge. This high piezometric level extends across the site to form a groundwater flow divide. North of the divide, groundwater flow is towards the northeast and reflects surface drainage patterns. South of the divide, groundwater flows towards the Industrial Seaway and discharges along the canal embankment. Flow to the canal converges from the east and west in the vicinity of the leachate seep.

This interpretation of flow directions was determined strictly from water level elevations in shallow wells. Therefore the map is somewhat generalized in the immediate vicinity of the fire protection pond (earthen bottom) and the landfill runoff impoundment. The extent of hydraulic interconnection between these ponds and the shallow aquifer is not known.



The pressure difference between the upper and lower aquifers is 8.28 and 8.30 ft at well sites #1 and #6 respectively. Linear extrapolation of the head in lower aquifer would yield a head difference of 11.8 ft at well #5s. This potential or flow vector is oriented downwards creating a driving force to push water through the clay. The fact that a head difference of this magnitude exists indicates the clay has a permeability several orders of magnitude less than the sands above and below and that the clay effectively retards movement of water between the aquifers.

Groundwater samples collected from the expanded monitor well network provide better definition of the extent of groundwater contamination at the RCI plant. As discussed previously, groundwater samples were analyzed for both inorganic and organic parameters. Individual laboratory analytical sheets are included in Appendix C.

Inorganic parameters have been summarized in Table 3. Selected parameters, including nickel, zinc, chloride, sulfate, and ammonia have been shown on Figure 4 in logarithmic histogram format to illustrate spatial distribution. These data reveal a large range of concentration values for chloride, sulfate and ammonia. Background concentrations are considered to be in the range as found in Wells #1s and #7s. Elevated concentrations of ammonia and chloride occur in all shallow wells adjacent to These data indicate that the landfill and its the landfill. associated runoff impoundment are the primary sources of inorganic contamination at the site. Chloride and sulfate may also have been derived from residual saltwater in the adjacent dredged spoil disposal area. Sulfate contamination in Wells #6s, and possibly in Wells #9s and #P-2s indicate a source of sulfates in the landfill and tank farm area.

Table 3. Summary of Inorganic Water Quality Data August, 1984, Groundwater Samples

•		•	377 Gammamh		. / 1	- 'm'	
	······································		All Concent	rations in mg			1
Well			-	4	Ammonia	Nitrate	TKN T
No.	<u>Nickel</u>	Zinc	Chloride	Sulfate	(As N)	(As N)	(As N
					7	in the term	
ls	0.08	0.04	7	<2	9	0.4	1:
1d	0.05	0.10	14	<2	6	<0.1	1
2s	0.06	0.12	330	24	. 73	2.6	7
3s	0.07	0.02	19	<2	7	0.1	. 1.
4d	0.06	0.07	17	2.	9	<0.1	1
5s	0.04	0.05	245	<2	16	<0.3	2
6s	0.45	0.90	8,180	780	2,560	6.4	2,64
6đ	0.09	0.06	10	2	8	<0.1	1
7s	0.07	0.05	13	3	6	1.3	1
8s	0.07	0.04	14	<2	4	6.1	1
9s	0.07	0.06	11	18	4.	. 0.8	1
10s	0.08	0.07	51	25	20	5.9	2
lls	0.07	0.07	955	63	210	1.5	22
12s	0.05	0.10	340	260	58	1.9	6
P-ls	0.08	0.04	7	<2	9.	0.4	1
P-2s	0.15	0.05	280	32	12	<0.1	1
-						- *	

1 TKN = Total Kjeldahl Nitrogen

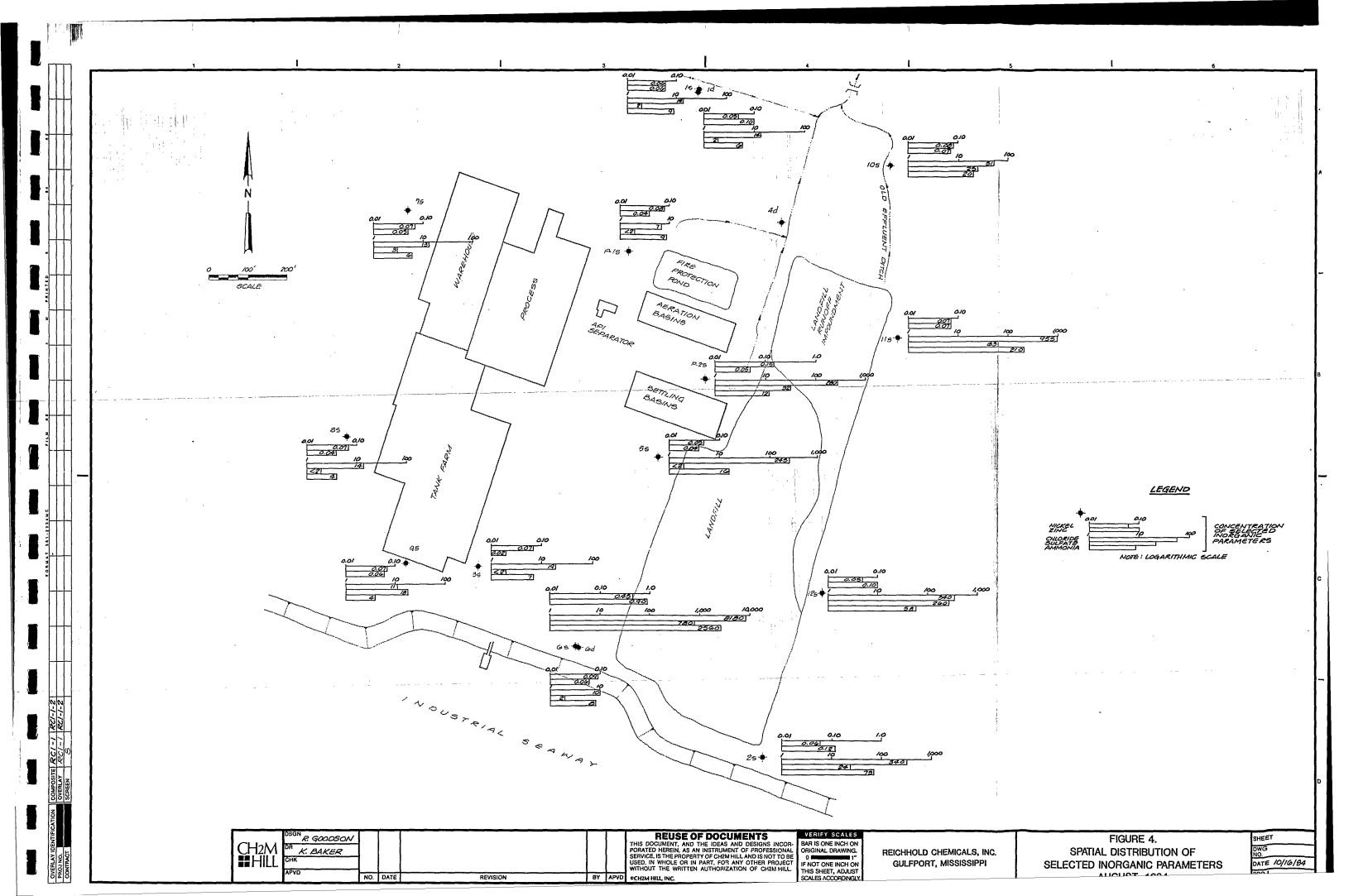


Table 4 summarizes selected organic parameters for both sampling events (4/84 and 8/84). Compounds selected for groundwater characterization were benzene, toluene, xylene isomers, and naphthalene. These key compounds were selected due to their ubiquitous nature in samples having quantifiable organic concentrations and due to their high concentration levels. Figure 5 shows the spatial distribution of these key compounds using logarithmic histograms.

The second sampling event confirmed high concentrations found in Wells #2s, #3s, #5s, and #6s. Low level concentrations were found for the first time in the lower aquifer at Well #6d. The highest concentration of a single compound in #6d was 130 ppb (xylene isomers). Ethyl benzene was also present at 15 ppb; and benzene, toluene and naphthalene were indicated as present below detection limits of 5-10 ppb.

Groundwater samples from newly installed perimeter monitor wells contained a range from no quantifiable organics to low level concentrations. Wells adjacent to the landfill on the east (#11s and #12s) contained trace to low level concentrations (less than 100 ppb). Wells located west of the plant (#7s and #8s) showed no quantifiable organics other than saturated hydrocarbons which are believed to be oils contributed by the drilling rig.

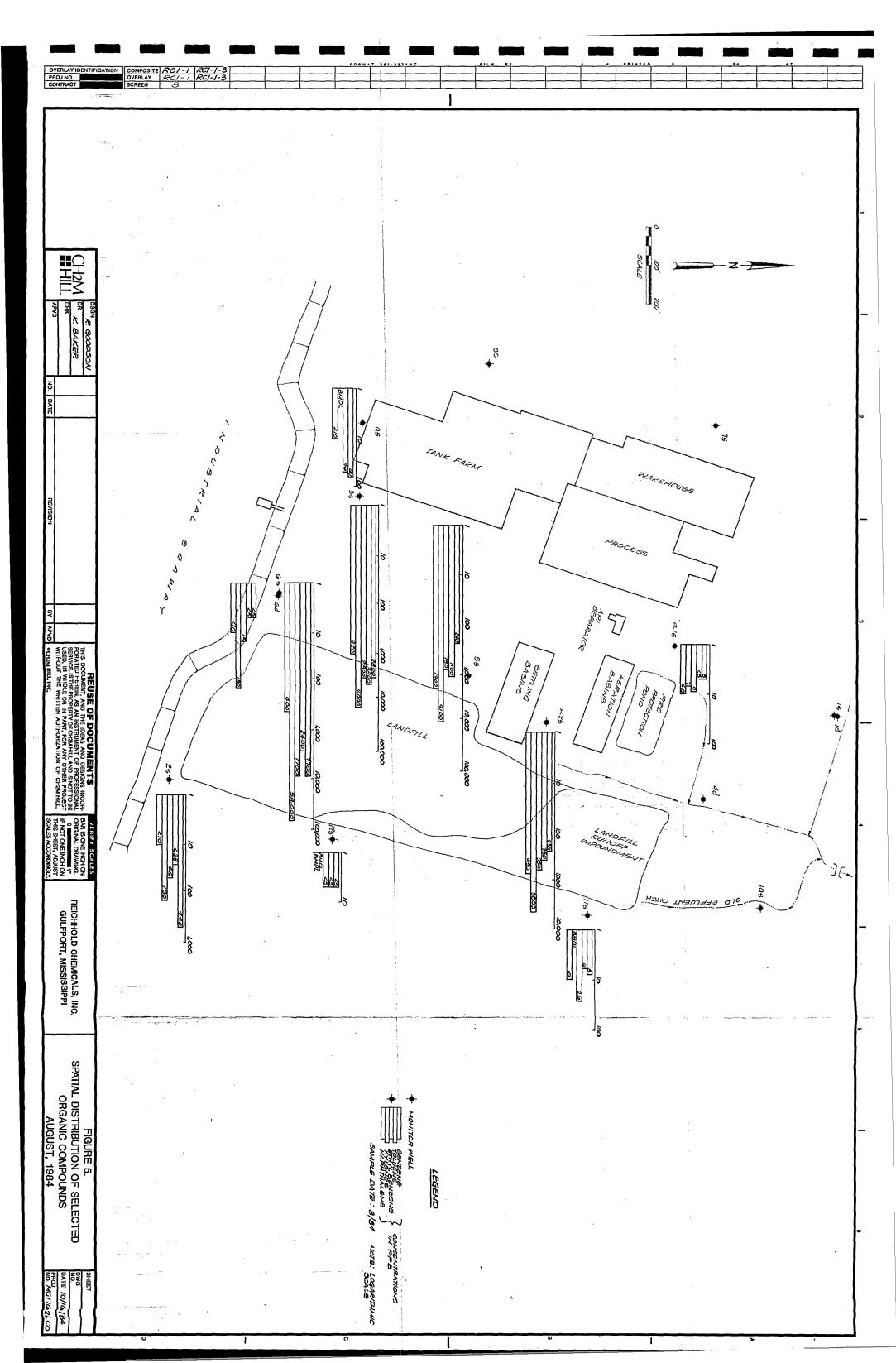
High concentrations found in Well #3s and significant levels in Well #9s coupled with a lack of inorganic contamination indicates a contaminant source in the tank farm. These wells were hydraulically downgradient of the tank farm and not from the landfill in August, 1984. At the time of these water level measurements there is no groundwater mechanism that could transport solutes from the landfill to Wells #3s and #9s. This flow condition may change seasonally due to changing recharge conditions from seasonally varying rainfall.

Table 4. Summary of Selected Organic Compounds
April and August, 1984, Groundwater Samples

All concentrations in ppb

				1	-	
Well				Ethyl	Xylene	
No.		Benzene	Toluene	Benzene	Isomers	Naphthalene
ls	4/84			*		
	8/84			1	5 4	
1đ	4/84			!		
	8/84				-	
2s	4/84	250	15	120	•	*
	8/84	440	*	46	130	*
3s	4/84	7000	10,000	8000	40,000	1200
	8/84	2800	3800	2800	11,000	920
4d	4/84				· -	*
	8/84					
5 s	4/84	470	2600	2400	24,000	2400
1	8/84	240	1100	780	9100	1900
6s	4/84	5500	1400	7200	38,000	340
-	8/84	7700	2400	7700	58,000	400
6đ	4/84			-	-	
	8/84	*	*	15	130	*
,7s	8/84			-		
9s	8/84	60	46		25	*
		00		! 	. 23	
10s	8/84					
lls	8/84	8	6	26		*
12s	8/84	*	*	*	- 1	
P-1s	8/84	5	*	9	7	*
P-2s	8/84	230	350	550	3800	650
				į		

^{* -} Present at levels below method detection limit.



APPENDIX A
SOIL BORING LOGS

CH2M ■HILL PROJECT NUMBER
MG 176Z1. CO

BORING NUMBER

SHEET

of 1

REV 11/82 FORM D1586

PROJECT REICHAOLD CHE	MICAES, INC LOCATION GUL DRILLING CONTRACTOR SOUTHERN EART	FPORT, MS
ELEVATION <u>21.09</u>	DRILLING CONTRACTOR SOUTHERN EART	TH SCIENCES , INC
DRILLING METHOD AND EQUIPMENT CM WATER LEVEL AND DATE 8/15/84		LOGGER RH GOODSON
SAMPLE STA	NDARD SOIL DESCRIPTION	COMMENTS
ATION TH TH TH TH TH TH TH TH TH TH TH TH TH	TECT	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
55 -	1-1 SAND, FN, HUMIC, SALT AND PEPPER COLOR	HNU HEADSPACE = >200 PPM
5 - 55 2 4-	4-6 SAND, FN, VERY CLAYEY, GRAY WITH ORANGE MARBLING	HNU HEADSPACE = -
3 8-	3-1 1010.5 SAME 10.5-11.5 SAND, FN., SLIGHTLY CLAYEY, DK ORANGE TO RED, VERY LOOSE	HNU HEADSPACE = -
15 55 HAN	M. WT. CLAY, SOFT, HIGH PLAST.	DRILLER REPORTS -CLAY AT 14-15 FT HNU HEADSPACE = 4.6 PPM
20 55 5	3-4 20-21 <u>SAME</u> 21-21.5 <u>CLAY</u> , SL. SANDY	HNU HEADSPACE = - 8.4 ppm
25 -	INSTALLED: 2.5' STINGER 5.0' SCREEN 10.0' CASING 2.5' RISER 150 lbs. Swimming Pool FILTER SAND, UNIFORM, CSE	-
		_



PROJECT NUMBER
MG 17621. CO

BORING NUMBER

SHEET OF

	D			7	. 1	i		<u> </u>	- 14 ·		
		<u>HHO(</u> 3 · 10		HEMICAL	s, INC.				27, MS	- 111-	
ELEVATION				CME 55		ITRACTOR <u>SO</u>		CARTH	SUENCE	S INC.	
WATER LEVE			8/15	184	START	WE KOLOLI	FINISH		LOGGER RH	GOODSON	
WATER LEVE	· 			STANDARD		SOIL DESCRIPTION				MMENTS	
DEPTH BELOW SURFACE	NTERVAL	TYPE AND NUMBER	весочеву	PENETRATION TEST RESULTS 6"-6"-6" (N)	NAME, GR PARTICLE S MOISTURE	ADATION OR F SIZE DISTRIBUT CONTENT, RELAT	PLASTICITY. ION, COLOR. IVE DENSITY	SYMBOLIC	DEPTH O	F CASING, B RATE, B FLUID LOSS,	
SUI SUI	Ā	μŞ	REC	,		STENCY, SOIL & GY, USCS GROU		SYR		IENTATION	
	\times	35 1		2-2-4	SAND , FNI PEPPER	, HUMIC, GRADING T			HNU HEAD GO PPM	SPACE =	,
5 -	X	55 2		4-8-9	<u>SAND</u> , FI LT. GRAY MOTILING	WITH OR	CLAYEY ;		HNU HEA 6.8 pp1	łDspace = M	· ·
1D -		5 N			SAND, FN AND OR		I, GRAY	- - -///. -	HNU HEAD 14 ppm		-
15 -		5 <i>5</i> 4		HAM, WT,	CLAY, 50 GRAY	FT, HIGH	PLAST. ,	- - - - -	HNU HEA 12.5 pp		-
2 6 -		55 5			GRAY 21-21.5 <u>C</u> LOW-M	H PLAST. LAY, SOF, OD PLAST,	, L T. GREE T, SANDY , GRAY	ENISH	HNU HEA	DSPACE =	•
25-	-				150 lbs.	: 2.5 STI 5.0 SCR 10.0 CA 2.5 RIS SWIMMINE IFORM, CO.	EEN SING ER POOL FIL	TER _			



PROJECT NUMBER
MG 17621.CO

BORING NUMBER

SHEET / OF /

REV 11/82

يرحف

FORM D1586

SOIL BORING LOG

PROJECT REICHHOLD CHEMICALS, LOCATION GULFPORT, MS DRILLING CONTRACTOR SOUTHERN EARTH SCIENCES DRILLING METHOD AND EQUIPMENT CME 55 WITH MUD ROTARY 8116184 LOGGER RH GOODSON WATER LEVEL AND DATE _ START COMMENTS SAMPLE SOIL DESCRIPTION PENETRATION SYMBOLIC Log NAME, GRADATION OR PLASTICITY, DEPTH OF CASING. TYPE AND NUMBER RESULTS DEPTH BELOW SURFACE PARTICLE SIZE DISTRIBUTION, COLOR, DRILLING RATE, 6"-6"-6" DRILLING FLUID LOSS, MOISTURE CONTENT, RELATIVE DENSITY (N) OR CONSISTENCY, SOIL STRUCTURE, TESTS AND INSTRUMENTATION MINERALOGY, USCS GROUP SYMBOL 53 HNU HEADSPACE = SAND, FN, HUMIC, GRAY TO 19.4 ppm TAN 5 ::: HNU HEADSPACE = 22 5-6 SAND , FN , GRAY TO 2 5.4 ppm 6-6.5 SAND, FN, CLAYEY, OPANGE 10 HNU HEADSPACE = 55 3-3-9 SAND, FN, SL. CLAVEY, LT. 2 17.0 PPM GRAY, MINGROPANGE MOTTLING 15 HAM. WT. CLAY, SOFT, HIGH PLAST., HNU HEADSPACE = ನತ 9.8 PPM 20 HAM. WT. HNU HEADSPACE = SAME 55 78 PPM NSTALLED: 2. 5' STINGER 5.0' SCREEN 10.0' CASING 25 2.5' RISER 20016 SWIMMING POOL FILTER SAND, UNIFORM, COARSE



PROJECT NUMBER
MG17621. CO

BORING NUMBER

SHEET /

OF

REV 11/82 FORM D1586

SOIL BORING LOG

CHEMICALS, LOCATION _ DRILLING CONTRACTOR SOUTHERN EARTH DRILLING METHOD AND EQUIPMENT CME 55 WITH MUD ROTARY 8/16/84 WATER LEVEL AND DATE LOGGER EH START STANDARD PENETRATION COMMENTS TEST SYMBOLIC LOG DEPTH OF CASING. NAME, GRADATION OR PLASTICITY. RESULTS TYPE AND NUMBER DEPTH BELOW SURFACE RECOVERY PARTICLE SIZE DISTRIBUTION, COLOR, DRILLING RATE. 6"-6"-6" DRILLING FLUID LOSS, MOISTURE CONTENT, RELATIVE DENSITY (N) OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL TESTS AND INSTRUMENTATION کڪ 0-0.5 CLAY, SOFT, SANDY. HNU HEADSPACE = 1-1-1 19.2 PPM HUMIC W/ ROOTS, BROWN 0.5-1.5 <u>SAND</u>, FN, HUMIC, SALT AND PEPPER 5 SAND, FN, SC CLAVEY, WATER !. HNU HEADSPACE = 9-6-7 2 17.8 PPM SATURATED, LT. GRAY TO OFANGE 10 10-10.5 SAND, FN DK GRAY TO HNU HEADSPACE = 3-5-3 SL. CLAVEY 15.6 PPM 3 10.5-11,5 CLAY, V. SANDY, MOD-HIGH PLAST. MOTTLED : GRAY, TAN, ORANGE 15 22-22-24 15-15.5 CLAY, SL SANDY, GRAY, HNU HEADSPACE = 55 MOD-HIGH PLAST. 15.2 ppm 15.5-16.5 SAND, MED- 25E, TAN TO LT. ORANGE 20 2-4-4 HNU HEADSPACE = CLAY, SL. SANDY & SILTY, MOD-9.8 ppm HIGH PLAST. , LT. GRAY 5 25 HNU HELDSPACE = 55 3-6-4 SAME VERY SANDY/SLTY INSTALLED: 2.5' STINGER 5.01 SCREEN 10.0' CASING 5. O' CASING



PROJECT NUMBER
MG 17621. CO

BORING NUMBER

SHEET /

1 OF 1

PRO	OJECT _	REIC	HHO	LD	CHEMICA	45, INC.	OCATION GU	LIFPC	URT, MS
	EVATION		Z1. =			DRILLING CONTRACTOR 5	OUTHERN E	ARTI	Sciences, Inc.
						WITH MUD ROT	TARY		
WA	TER LEVE	L AND D	ATE	8/16		START	FINISH		LOGGERRIA GOODSON
			SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	ON		COMMENTS
ELEVATION	DEPTH BELOW SURFACE	INTERVAL	TYPE AND NUMBER	RECOVERY	TEST RESULTS 6"-6"-6" (N)	NAME, GRADATION OR PARTICLE SIZE DISTRIBUT MOISTURE CONTENT, RELATOR CONSISTENCY, SOIL MINERALOGY, USCS GROU	ION, COLOR. FIVE DENSITY STRUCTURE,	SYMBOLIC LOG	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
			55		1-2-3	SAND, FN, SL. CLAY			HNU HEADSPACE =
	1		l l			DRY (FILL MATE	FIAL	<u>/. /</u>	1
	5 -	\times	55 2		2-2-2	SAND, MED, TAN,	ROOTS		HNU HEADSPACE =
	/O - -	X	కక క		13-16-20	SAND, FN, SL. CLA GRADING TO ORAI	yey, lt. gray uge	/.	HNU HEADSPACE =
	15 - - -	X	5.5 4	5%	HAM. WT.	CLAY, SANDY, W/G	RAVEL,		HNU HEADSPACE = -
	- 20 - - -		55 5		3-5-6	20-20.1 SAND, MED 20.1-21 CLAY, SAND MOD-HIGH PLAST. GRAY 21-21.5 CLAY, COFT,	Y, STIFF,		HNU HEADSPACE =
	- 25 - - -		26		3-5-6	GRAY 25-ZG CLAY, SL, MOD-HIGH PLAST. GRAY 26-ZG S CLAY, V. S LOW PLAST., DK.	SANDY, STIFF, G REENISH		HNU HEADSPACE = 100 PPM - BACKFILLED HOLE TO- NZO' W/ BENTONITE - PELLETS
						INSTALLED: ZS.STIN	14ER	-	10.0' CASING
	30-		<u> </u>	<u> </u>		5.0'SCR	EEN	1	2.5' RISER -
			-						REV 11/82 FORM D1586



PROJECT NUMBER

MG17621.00

BORING NUMBER

SHEET

OF I

REV 11/82 FORM D1586

PRO	DJECT _	KE!	CHH	OLD	CHEN	11CALS, INC. LOCATION _	LILFPO	DRT, MS
	VATION		10		د د ۸	DRILLING CONTRACTOR SOUTHERS	AICTI	1 SCIENCES, INC.
	LLING ME			IPMENT				Pll Curesu
WA	TER LEVE	L AND D	ATE	211		START FINISH		LOGGER RH GOODSON
	•		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION		COMMENTS
ELEVATION	DEPTH BELOW SURFACE	INTERVAL	TYPE AND NUMBER	RECOVERY	6"-6"-6"	NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
			55		2-4-4	SAND, FN, SL. LLAYEY, LT.	/·/·	HNU HEADSPACE =
	- - -					GRAY TO TAN		250,PPM
	<i>5</i> - - -	X	55 2		11-12-7	SAND, FN, SL.CLAYEY, LT. GRAT TO LT. BROWN WATER SATURATED		HNU HEADSPACE = 400 PPM
	10 -	X	5 S		13-18-11	SAND, MED-CSE, SL. CLAVEY 6" TYPICAL GRAY/ORANGE CLAYEY SAND 6" CLEAN, WELL SORIED LT GRAY SAND	/·/·	HNU HEADSPACE = 220 PPM
	15 - -	X	55 4		HAM. WT.	CLAY, SOFT, HIGH PLAST, GRAY	-///	HUL HEXDSPACE =
	20-	-	55 5		4-7-10	20-20.2 SAME 20.2-21.5 CLAY, SL. SANDY, STIFF, MOD-HIGH PLAST., GREENISH-GRAY INSTAULED: 2.5' STINGER 5.0' SCREEN 16.0' CASING 2.5' RISER 150 Ibs. FILTER SAND	-	HNU HEADSPACE ?
						DAND	-	_



PROJECT NUMBER

BORING NUMBER

MG17621. CO

P-1

SHEET

O.E.

REV 11/82 FORM 01586

PRO	DJECT _	REIC	HHO	W (HETAICA	LS, NC. LOCATION E		, , , , , , , , , , , , , , , , , , , ,
	VATION		7.80			_ DRILLING CONTRACTOR SOUTTHERN	EART	H Sciences, NC.
DRI	LLING ME	THOD A	ND EQU	IPMENT.	CME-E	55 WITH MUD POTARY		
WA	TER LEVE	L AND D	ATE	8/17	[84	START FINISH		LOGGER RH GOODSON
		· ·	SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION		COMMENTS
ELEVATION	DEPTH BELOW SURFACE	INTERVAL	TYPE AND NUMBER	RECOVERY	TEST RESULTS 6"-6"-6" (N)	NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
			SS		3-6-8	SAND, FN, HUMIC,		HNU HEADSPACE =
1			ŧ.			SALT/ PEPPER COLOR	-	300 PPM.
	- - 5 -	X	55 2		15-18-21	SAND, FN-MED, MUIST, LT. GRAY GRADING TO TAN	1	HNU HEADSPACE =
	- - - !0 -		55	<i>501</i>			-	-
	- -	X	3	2 /6		CLAY, SOFT, HIGH PLAST. GRAY		HNU HEADSPACE= (INSUFFICIENT SAMPLE VOLUME)
	-					(NSTALLED: 2.5' STINGER	4	_
	15-	1				5.0' SCREEN	_	_
	-	1				5.01 CASING	4	-
						2.5' RISER	4	_
						150 lbs. FILTER SAND		-
						1	. 🕇	_
	•	1					1	-
	-					:	4	-
	-	-	ļ		<u> </u>		4	-
		,				!	4	_
	_						_	_
	_]				1		_
								_
	-						7	-
		1					1	-
	·	1				·	-	-
	-	4]		4	_

CH2M HILL

MG 17621, CO

BORING NUMBER

15

HEET /

					<u> </u>	ELEVATION DEPTH	<u>ء</u> َ ا	DRILLI	PROJECT _	
<u> </u>	1-1- - 1-1-	5	0	υ _γ		BELOW SURFACE		NGME	- L.	
-			\times	\times		INTERVAL	WATER CEVEL AND DATE	THOD A	ZEI ZEI	
			ro W	NN	- 55	TYPE AND NUMBER	SAMPLE	- ;;; i	17.72	
	-					RECOVERY		IPMENT	270	
			HAM. WT.	9-15-		PENETRATION TEST RESULTS 6"-6"-6" (N)	STANDA	DI RA	CHEMILLAL	
		7 0		<u> </u>	IV.	' 's' ox	B		11100	H
	SOO 1P2	~ 1 ia	17, 65 10, 10, 10	SAND, FN,	SAND, RESIN	MIN NAA	 <u>u</u>	O PEI	1	
	of lea	16 16	on Ala Land	TI Z	77	AE, GRA	AH I	WG CON	INC	
	2.5°	AY, SA ORANO AY, SO	שׁאַם.	4	S B	NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SOIL DESCRIPTION	5 WITH M		
	7227	SAND ANGE SOFTS	2	CLA	77 TO 18 V	N OR P	CRIDTIC	2		
	STINGE SCREEN CASING RISER SAND	+16+		/EY	9	LASTIC ON, CO IVEDEN STRUCT	FINISH		LOCATION	
	,	7 4	CLAYEY,	ey, TAN	GRAY	URE,		TAIR) ž	
<u> </u>			42.	1					2	
						SYMBOLIC LOG		7	THE THE T	
		i C	HNA	e s ENE	35 307	로급유무유	OGGER		794	
		77	干面的	HEAD	Ju HEADSP, 350 PPM	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION				
		<u>ـ</u> ـــــــــــــــــــــــــــــــــــ	HEADSPACE	HEADS PACE	HEADSPACE O PPM	H OF CASING ING RATE, ING FLUID L S AND	GOOD.			
			D	Æ.	16	G, LOSS,	2504	NC		
				<u> </u>			<u> </u>			

APPENDIX B

TECHNICAL MEMORANDUM EM CONDUCTIVITY SURVEY TO: File

FROM: Robert H. Goodson

DATE: August 27, 1984

SUBJECT: Results of Conductivity Survey

Reichhold Chemicals, Inc. Gulfport, Mississippi

PROJECT NO.: MG17621.CO.02

INTRODUCTION

CH2M HILL has been engaged by Reichhold Chemicals, Inc. (RCI) to identify the source and extent of groundwater contamination at the RCI plant in Gulfport, Mississippi. In May of 1984, a report entitled "Groundwater Monitoring Network and Preliminary Contamination Assessment - Reichhold Chemicals, Inc. - Gulfport, Mississippi" by CH2M HILL was submitted to RCI and Mississippi Department of Natural Resources (MDNR). This report summarizes the initial investigation at the site. Subsequent discussions between RCI, CH2M HILL, and MDNR resulted in additional work to identify the source and extent of groundwater contamination. The scope of this additional work includes:

- 1. Conduct an electromagnetic conductivity survey to delineate the landfill contaminant plume,
- Install 8 additional shallow monitor wells, and
- 3. Sample all 16 monitor wells and analyze water samples for volatile organics, base/neutral extractable organics, acid extractable organics, pH, conductivity, nickel, and zinc.

The results of this additional work will be presented in two parts. This technical memorandum includes the results of the conductivity survey and the location of the monitor wells. A final report will be issued, currently scheduled by September 28, 1984, containing boring logs, well construction data and water analytical data.

PREVIOUS WORK

The initial investigation at this site included drilling of seven borings ranging in depth from 16.5 to 96.5 ft. and

MEMORANDUM/Cont'd Page 2 August 27, 1984 MG17621.CO.02

constructing eight monitor wells ranging in depth from 8 to 92.5 ft. All wells were sampled and analyzed for pH, conductivity, total organic carbon (TOC), total Kjeldahl nitrogen (TKN), volatile organics, base/neutral extractable organics, and acid extractable organic compounds.

The soil borings revealed a shallow geologic framework comprised of a thin surficial sand underlain by clays and plastic silts. Beneath this layer of clay and silt occurs a zone of sand and non-plastic silts. A water table or unconfined aquifer occurs in the shallow sand and the deeper sand is a confined aquifer. The water table aquifer exhibits an apparent mounding effect near the center of the site possibly due to induced recharge from the fire protection pond and the landfill runoff impoundment.

Contamination appears to be limited to the water-table aquifer. No quantifiable concentrations of contaminants were found in the deep wells. Significant levels of organic and inorganic contamination were found in shallow wells in the vicinity of the landfill and tank farm. Elevated values of electrical conductivity of water samples from near the landfill indicated that the contaminant plume from the landfill could be mapped using remote sensing methodology. The technique chosen was an electromagnetic conductivity survey.

CONDUCTIVITY SURVEY

Methodology

The conductivity survey employed at this site was an inductive electromagnetic method using a Geonics, Ltd. EM-31D instrument. This instrument measures values of terrain or bulk conductivity recorded in values of millimhos/meter. The effective depth of penetration of the instrument is about 20 ft.

In the absence of conductive minerals such as hematite, bulk conductivity is a function of porosity, moisture content, concentration of dissolved electrolytes in pore fluids, temperature and phase state of pore fluids, and amount and composition of colloids (McNeill, 1980). In this geologic environment conductive minerals are not present and the groundwater temperature is assumed constant thereby

MEMORANDUM/Cont'd Page 3 August 27, 1984 MG17621.CO.02

eliminating these factors. Porosity, moisture content, and the amount of colloids (clays) will exhibit a limited effect on conductivity which will show up as background variation or noise. Pore water conductivity due to the presence of dissolved electrolytes (contaminants) has the greatest effect on conductivity. Previous analyses have shown pore water conductivity to vary over two magnitudes (100-10,000 micromhos/cm).

The survey was conducted by establishing lines generally radiating away from the landfill and recording values of conductivity at intervals of 20 ft. and 50 ft.

Results

Over a two-day period, 611 values of conductivity were recorded at 286 stations. The data are presented in Appendix A. The data are presented graphically in contoured format in Figure 1.

Distinct conductivity trends are present in the vicinity of the landfill. It is important to note that the survey line west of the warehouse and tank farm exhibited low conductivity (less than 20 mmhos/m) and less variation than areas near the landfill. This variation can be related to background noise and background condictivity appears to less than 20 mmhos/m.

A steep conductivity gradient is present west of the land-fill and this is believed to be the leading edge of the landfill contaminant plume. This indicates that the plume has migrated south and west and most likely contributes to the contamination found in Well #3s. Terrain conductivity decreases in the area adjacent to the contaminated seep. This is most likely due to an increase in the unsaturated sand thickness caused by draining of the water table. It is unknown why the water table preferentially discharges at this location along the canal embankment.

Conductivity trends are very different east of the landfill. This land has been used as a dredged spoil disposal area (DSDA). Conductivity increases away from the landfill thus indicating that the contaminant plume does not extend eastward. The very high values of terrain conductivity present in the DSDA result from clay-rich spoil and residual saltwater.

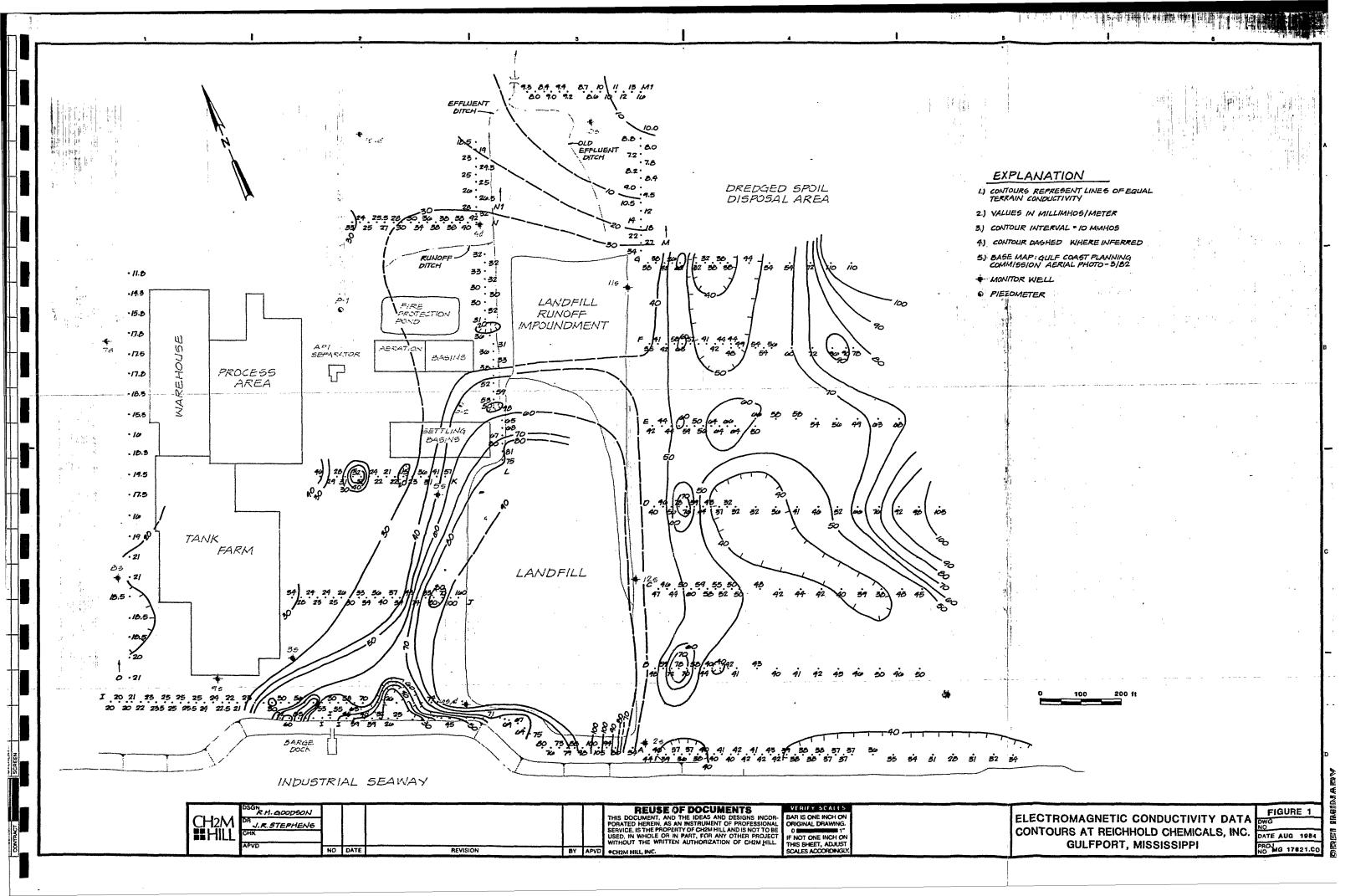
MEMORANDUM/Cont'd Page 4 August 27, 1984 MG17621.CO.02

The conclusions presented herein are preliminary and will be finalized after evaluating the water quality and water level data.

REFERENCE

McNeill, J.D., 1980, Electrical Conductivity of Soils and Rocks; Technical Note TN-5, Geonics, Ltd; 22 p.

jh/BG/046



CH2M1

EM CONDUCTIVITY FIELD DATA

PROJECT: REICHHOLD CHEMICALS, INC. SHEET: 1 OF 10

DATE: 7/26 4 7/27/84 PROJECT NO .: MG / 7621. 60

CREW: R.H. GOODSON, M. FESSLER

NOTES: P = INSTRUMENT ROTATED PERPENDICULAR TO SURVEY LINE

LOWERED TO GROUND

	<u> </u>	4	ORIENTED ON :	SIDE &	AT GRO	UND LEVE	L
NO.	DIST.	COND. (mmhos/m)	NOTES	NO.	DIST.	COND. (mmhos/m)	NOTES
/	A -0	44	EM-31d (AT HIP)	34	800	31	
2	20	40		35	856	32	
3	46	39		36	900	34	
4	60	37					
5	80	36		37	B-0	48	
5 b	100	37		38	20	59	
7	120	38		39	40	72	
8	140	40		40	60	78	
9	160	40		41	86	70	
10	180	41		42	100	58	
[[200	40		43		58	P
12	220	42		44		68	4
13	240	42		45	120	44	
14	260	41		46	140	40	
15	280	42		47	160	39	
16	300	43		48	180	42	
17	320	42		49	200	41	
18	340	39	20	50	250	43	
19	360	38	-	51		38	P
20	380	38	*	52		56	G
21	400	38		53 .	300	40	
22	420	38		54	350	41	
23	440	37		55	400	42	
24	460	37		5b	450	45	
25	480	37		57	500	46	
26	500	37		58	550	56	
27	550	36		59		59	GP.
28	600	35		60		52	SP
29	-	45	DITCH	61	600	46	
30	650	34		62	650	50	
31	700	31			 		
3Z 33		38	DITCH				
33 .	750	28					



PROJECT: REICHHOLD CHEMICALS, INC. SHEET: 2 OF 10

PROJECT NO .: MG 17621. CD DATE: 7/26 + 7/27/84

CREW: GOODSON 4 FESSLER

NO.	DIST.	COND. (mmhos/m)	NOTES	NO.	DIST.	COND. (mmhos/m)	NOTES
LINE	: C			LIN	= : D		
63	0	47		91	0	46	
64	20	46		92	20	46	
65		55	6	93		56	4
66		45	5	94		48	5
67	40	44		95	40	56	
68	60	50		96	60	78	
69	80	60		97	80	76	
70	100	59		98	100	59	
71	120	58		99	120	44	
72	140	55		100	146	40	
73	160	52		101	160	37	
74	180	50		102	180	32	
75	200	50		103	206	32	
76	258	48		104	250	32	
77	300	42		105	300	36	
78		44	9	106		40	6
79		46	5	107		38	5
80	350	44		108	350	41	
81	400	42		109	400	46	
82	450	40		110 :	450	52	
83	500	39		111	500	66	
84		47	9	112		86	G
85		43	5	113		76	S
86	550	38		114	556	76	
87	600	48		115	600	92	
88	656	45		116:	656	98	
89		49	G	117	700	105	
90		55	5				



PROJECT: REICHHOLD CHEMICALS, INC. SHEET: 3 OF 10

PROJECT NO .: MG/7621. CO DATE: 726 & 7 27 84

CREW: GOODSON & FESSLER

NO.	DIST.	COND. (mmhos/m)	NOTES	NO.	DIST.	COND. (mmhos/m)	NOTES
LIN	E:E			LINE	: F		
118	0	42		143	0	38	
119	20	44		14-4	20	41	
120	40	44		145	40	42	
121	60	63		146	60	58	
222	86	59		147	80	68	
123	100	50		148		52	G
124	120	56		149		62	S
125	146	64		150	160	57	
126	160	64		151	120	44	
127	180	66		152	140	41	
128	200	64		153	160	42	
129		70	G	154	180	44	
130		76	5	155	200	44	
131	250	50		156		53	9
132	250	66	OFFSET 20'N.	157		40	S
133	300	58		158	200	48	OFFSET 10 S.
134	350	58		159	220	49	<u> </u>
135	400	54		160	240	50	
136	450	56		161	260	54	
137	500	49		162	280	54	
138_	550	68		163	300	56	
139	600	68		164	350	60	
140		8Z	G	165	400	72	
141		76	5	166	450	96	
142	650	92		167	480	90	
				168		110	GP
				169		100	SP
				170	500	78	
				:			
•							



PROJECT: REICHHOLD CHEMICALS, INC. SHEET: 4 OF 10

PROJECT NO.: MG 17621.CO DATE: 7/26 4 7/27/84

CREW: GOODSON & FESSLER

NO.	DIST.	COND.	NOTES	NO.	DIST.	COND.	NOTES
		(mmhos/m)		761	146	(mmhos/m)	
_INE				201	140	98	
71	<u>U</u>	38		202	160	88	
72	<u>zo</u>	38		203	180	79	
73	40	42		204	200	73	
74	60	56		205		99	G
75	80	69		206	İ	60	5
76	100	47		207	220	76	
177	120	32		208	240	80	
178	140	32		209	260	80	
179	160	<i>3</i> 8		210	280	75	
180	180	38		211	300	64	
181	200	38		212	320	67	
182	250	44		213	340	69	
183	300	54		214	350	85	
184		54	G	215	360	60	
185		60.	5	216	380	71	
186	350	54		217	400	60	
187	400	72		218		80	6
188	450	110		219		45	5
189	500	110		220	420	55	ADJ. WELL 65, d
190		120	G	221	440	49	,
191		110	S	ZZZ	460	48 .	
		<u> </u>		233	480	45	
LINE	: 4				500	40	
192	0	44		225	1	52	G
193	20	54		226		30	5
194	40	64		227	520	35	
195	†	84	G	228	540	29	
196		60	5	229	560	27	
197	60	86		230	600	25	
198	80	94		23/	1000	22	Р
199				232			G
Z00.	120	100		233	 	28 25	5



PROJECT: REICHHOLD CHEMICALS, INC. SHEET: 5 OF 10

PROJECT NO .: MG 17621. CO DATE: 7/26 4 7/27/84

CREW: GOODSON + FESSLER

NO.	DIST.	COND. (mmhos/m)	NOTES	NO.	DIST.	COND. (mmhos/m)	NOTES
234	620	26		265	80	74	
235	640	32		266		96	6
236	660	39		267		54	S
237	680	40		268	100	62	
238		40	P	269	120	42	
z 39	700	40		270	146	29.5	
240		38	P	271	160	24.5	ADJ. DRUMS
241	720	45		282	180	26	
Z4 Z		44	P	27.3	200	65	P (INT)
243	740	48		274	220	35	
244		7	P	275		110	P
245	760	70		276	240	71	
Z46		0	P	277		68	P
247	780	70		278	260	66	
248		6	P	279		60	P
Z49	800	82		Z80	280	58	
Z50		130	G	281	1	58	P
Z51		70	s	787	300	58	
75Z		0	P	Z83		53	P, ADJ. DOCK
z53	820	15		284	320	50	
254		0	P	285		51	P
Z55	840	89		286	340	53	
256		80	P	Z87		53	P
257	860	60		288	360	93	
z58	880	85		289		82	Р
259		59	P	290	380	36	
				291		130	P
LINE	: I			292	400	56	
260	0	95		293		56	P
261		98	P	294	420	0	
262	20	125		295		0	P
263	40	105	·	296	440	50	
264	60	85		297		49	P



PROJECT: REICHHOLD CHEMICALS, INC. SHEET: 6 OF 10

PROJECT NO.: MG 17621, CO

DATE: 7/26 4 7/27/84

CREW: GOODSON & FESSLER

NO.	DIST.	COND. (mmhos/m)	NOTES	NO.	DIST.	COND. (mmhos/m)	NOTES
298	460	36		330	760	23	
299		36	P	33/		23	P
300	480	48		332	780	22	
301		78	P	333		22	P
30Z	500	49			800	21	
303		39	P	335		21	P
304	520	2.3			810	20	
305		23	P	337		20	P
306	540	21		338	830	20	
307		21	P	339		20	P
308	566	21		340	850	20	
309		22	P	341		20	P
310	580	22.5		:			
311		22.5	P	LINE	:]		
312	600	24		342	0	160	
313		24	P	343		165	P
314		30	G	344	20	100	
3 <i>15</i>		17	5	345		100	P
316	620	24		346	40	74	
317	ļ	24	P	347		67	P
318	640	25		348		74	6
319		25	P	349		150	S
320	660	25.5	l'	350	60	80	
321		25.5	P	351		80	P
<u> 322</u>	680	25		352	80	80	
323		25	P	353		85	P
324	700	25		354		100	6
325		25	P	355		80	S
326	726	25		356	100	7/	
327		25	P	357		76	P
328	740	23.5		358	120	44	
329		23,5	P	359		42	P



PROJECT: REICHHOLD CHEMICALS, INC. SHEET: 7 OF 10

PROJECT NO.: MG17621. C6 DATE: 7/26 4 7/27/84

CREW: GOODSON 4 FESSLER

NO.	DIST.	COND. (mmhos/m)	NOTES	NO.	DIST.	COND. (mmhos/m)	NOTES
360	140	34		LINE	: K		
361		34	Р	390	0	57_	
36Z	160	36		391		56	P
363		37	P	39 Z	20	39	
364	180	40		393		42	Ρ
365		40	P	394	40	32	
366	200	36		395		30	P
367		36	P	396	60	34	
368		45	G	397		38	P
369		34	5	398	80	23	
37D	220	34		399		22	P
371		33	P	400	100	11	
372	240	33		401		19	P
3 73		33	P	402		0	6
374	260	30		403		50	5
375		30	P	404	120	23	
376	286	26		405		21	P
377		26	P	406	140	22	
378	300	25		407		20	P
379		25	P	4-08		26	6
380	320	24		409		22	5_
381		23.5	P	410	160	ZZ .	
38 Z	340	22		411		21	P
383	`	23	P	412	180	25	
384	360	23		413		22	P
385		24.5	P	414	200	52	
386	380	25.5		415		52	P
387		Z9.5	P	416	220	50	
388	400	36		417		54	P
389		32	P	418	240	31	
				419		31	P
				420	260	28	
				421		27	P



PROJECT: REICHHOLD CHEMICALS, INC.

_ SHEET: <u>8</u>___OF__10

PROJECT NO .: MG 17621. CO

DATE: 7/26 & 7/27/84

CREW: GOODSON & FESSLER

NO.	DIST.	COND. (mmhos/m)	NOTES	NO.	DIST.	COND. (mmhos/m)	NOTES
422	280	28		452	240	33	
423		29	P	453		33	P
424	300	46		454	260	36	
425		45	P	455		35	P
				456	280	32	
LINE:	4			457		30	P
426	0	75		458	300	36	
427_		75	P	459		36	P
128_	26	78		460	320	16	
429		83	P	461		20.5	P
430	40	73		462	340	3/	
431		86	P	463		31	P
432	60	66		464	360	31	
433		68	P	465		3Z	P
434	80	72		466	380	30	
435		64	P	467		30	P
436_	100	62		468	400	30	
437		68	е	469		30	P
438_	120	48		470	420	30	
4-29		48	P	471		30	P
440	140	52		472		38	6
441		54	P	473		24	5
442	160	58		474	440	31	
443		60	P	475		32	P
444	180	52		476	460	33	
445		52	P	477		33	P
446	200	47		478	480	32.	
447		48	P	479		32	P
448_	220	38		480	500	32	
449		38	P	481		32	Р
450		45	6	:			
451		35	5				



	A .	1		٠.	
PROJECT: REICHHOLD	CHEMICALS,	INC.	SHEET:	OF 1	0
PROJECT NO .: M6 17621.	CO		DATE: _7/2	26 4 7/27	84

CREW: GOODSON & FESSLER

NO.	DIST.	COND. (mmhos/m)	NOTES	NO.	DIST.	COND. (mmhos/m)	NOTES
LINE:	M			512	220	9.0	
182	O	34		513	240	8.4	
183	26	27		514	260	8.0	
484	40	22		515	280	9.3	
485	60	18					
486	80	14		LINE:	N		
487	100	12		516	0	42	
488		16	6	517		42	P
489		7.0	5	518	20	40	
498	120	10.5		519		40	P
491	140	9.5		520	40	38	
492	160	9.0		521		52	G
493	180	8.4		522		20	5
494	200	8.2		523	60	38	
495	220	7.8		524	80	38	
496	240	7.2		525	100	38	
497	260	8.0		526	120	36	
498	280	8.8		527	140	34	
499	300	10		528	160	30	<u> </u>
	<u> </u>			529	180	30	
LINE	: M1			530	200	28	
500	0	16		531		36	9
501	26	13		532		20	5
<u>5</u> 62	40	12		533	220	Z7	
<i>5</i> 03	60	11		534	240	25.5	
504	80	10		535	260	25	
505	100	10		536	280	24	
506		11.5	G	537	300	32	
507		7.0	5	538		33	P
508	120	8.6					
509	140	8.7					
510	180	9.2					
51)	200	9.4					



PROJECT: REICHHOLD CHEMICALS, NC. SHEET: 10 OF 10

PROJECT NO .: MG 17621. CO

_____ DATE: 7/28 47/27/84

CREW: GOODSON 4 FESSLER

NO.	DIST.	COND. (mmhos/m)	NOTES	NO.	DIST.	COND. (mmhos/m)	NOTES
LINE:	NI			568	400	16	
539	0	40		569		16	P
540		19.5	P	570		20	6
541	20	32		571		13	5
542		32	P	572	450	17.5	
543	40	28		573		17.5	P
544		28	P	574	500	19.5	
545	60	265		575		19.5	P
546	80	26		576	550	18.5	
547	100	25		577		18	P
548	120	25		578	600	16	
549	140	24.3		579		16	P
550		32	9	586		19.5	6
551		18	5	581		(1	5
552	160	23		582	650	15.5	
553	180	19		583		15	P
554	200	18.5		584	760	18.5	
			<u>.</u>	585		18	P
LINE:	0		=	586	762	18	,
555	0	21	¥	587		17,5	P
556		28	G	588	800	18	
557		14	5	589		17 .	P
558	50	26		590		25	9
559	100	18.5		591		12	5
560	150	18.5		592	850	18.5	
561	200	18.5		593		17	P
562		2.3	6	594	900	16.5	
563		13	S	595		15	P
564	250	21		596	950	17	
565		21	P	597		20.5	P
566	300	21		598	1000	12	
567	350	19		599		11.5	P
				600		14	G .S
				601		9.0	ے

APPENDIX C LABORATORY ANALYTICAL SHEETS



ENVIRONMENTAL LABORATORY 807 S. McDonough Street Montgomery, Alabama 36104 205/834-2870

REPORT OF ANALYSIS

THE OUT OF ANALYSIS		· • • •
Client Reichhold Chemicals	Project No. MG17621.CO	
Address c/o CH2M HILL/807 S. McDonough/Montgomery,	AL 36104	
Poh Coodron	ory No5200	
Description of Sample: RE: Samples submitted to lab the Reichhold Chemical p	on August 29,30, 31, 1984 from lant in Gulfport, Mississippi.	
	en de la companya de la companya de la companya de la companya de la companya de la companya de la companya de La companya de la companya de la companya de la companya de la companya de la companya de la companya de la co	
·		-
**See Attached		
		724 - 1 - 1
		11.1
		 *
	· ·	- = :
	New years of the second	
		· .====
All results expressed as mg/l unle	ess otherwise noted.	
All analyses conducted in accordance with STANDARD METHODS FOR WATER AND WASTEWATER.	Respectfully submitted,	
	Craig O. Vinson, Laboratory Director	

LAB-9/1/78-0

Description	<u>Nickel</u>	Zinc	<u>Chloride</u>	Sulfate	Ammonia-N	Nitrate-N	Total Kjeldahl Nitrogen-N	Priority Organics
W-11S 8/29	0.07	0.07	955	63	210	1.5	220	*
B-1d 8/29	0.05	0.10	14	< 2	6	<0.1	12	* .
B-4d 8/29	0.06	0.07	17	2	9	<0.1	17	*
B-1S 8/29	0.06	0.06	14	2	9	<0.1	15	*
W-10s 8/29	0.08	0.07	51	25	20	5.9	27	*
W-7S 8/29	0.07	0.05	13	3	6	1.3	12	*
W-8S 8/29	0.07	0.04	14	< 2	4	6.1	10	*
W-8S 8/30	0.07	0.06	11	18	4	0.8	11	*
B-3S 8/30	0.07	0.02	19	< 2	7	0.1	13	*
B-6d 8/30	0.09	0.06	10	2	8	<0.1	17	*
P-1S 8/30	0.08	0.04	7	< 2	9	0.4	15	*
P-2S 8/30	0.15	0.05	280	32	12	<0.1	18	*
B-5S 8/31	0.04	0.05	245	< 2	16	0.3	22	*
B-6S 8/31	0.45	0.90	8180	780	2560	6.4	2640	*
B-2S 8/31	0.06	0.12	330	24	73	2.6	77	*
W-12S 8/31	0.05	0.10	340	260	58	1.9	60 .	*
							9	

W-95

^{*} Data for Volatiles, acids and base/neutrals attached.



ORGANIC ANALYSIS

SAMPLE INFORMATION							
Client: Reichhold Chemicals, Inc.	Attn: Bob Goodson						
Address: CH2M HILL P. O. Box 2499	Montgomery, AL 36104						
Date Received: August 29, 1984 Date Rep	orted: September 19, 1984						
Types and Quantity of Samples: Sixteen Water Sa	mples						
Analysis Requested:							
	Pesticides & Herbicides methanes						
Acids 5. Other _ Pesticides							
ANALYTICAL INSTRUMENTATION X Finnigan Model 4021 Gas Chromatograph/Mass Spectrometer/Data System equipped with a Tekmar LSC-1 Liquid Sample concentrator. Varian Model 3700 Gas Chromatograph equipped with flame ionization, electron capture, and thermionic specific detectors.							
ANALYTICAL METHODOLOGY 1. Priority Pollutants—The samples are analyzed in account 608, 624, and 625, EPA-600/4-82-057 (1982)	ordance with procedures described in Methods						
 Phenoxyacid Herbicides—Samples are analyzed in ad Methods 7, Federal Register, Vol. 38, No. 75, Part II, No. 	ccordance with procedures outlined in lovember 28, 1973.						
 Pesticides and PCB's (soil, sediment, etc.)—Samples outlined in EPA Method 8.08, Test Methods for Evalu 	are analyzed in accordance with procedures ating Solid Waste, 1980.						
Harold E	Cole, Mass Spectroscopist/Manager Organics Inson, Laboratory Director						



GC/MS Report

Analyst	<u>M. Price</u>
Date of Analysis	9/6/84

Client _____ Reichhold Chemicals, Inc.

____Laboratory No. ____

5200D

Sample Description	Water	sample	labeled	B-15

	· · · · · · · · · · · · · · · · · · ·	,	<u>'</u>
Compounds	MDL ¹ PPB	Conc. ² PPB	
Chloromethane	10	BMDL	
Bromomethane	10	BMDL	
Vinyl Chloride	10	BMDL	
Chloroethane	10	BMDL	
	5	ND	
Methylene Chloride Trichlorofluoromethane	5	BMDL	
	5	BMDL	
1,1-Dichloroethene	5	BMDL	:
1,1-Dichloroethane	5	BMDL	
Trans-1,2-Dichloroethene	5	BMDL	:
Chloroform	5	BMDL	
1,2-Dichloroethane		1	
1,1,1-Trichloroethane	5	BMDL	
Carbon Tetrachloride		BMDL	
Bromodichloromethane	5 5	BMDL	
1,2-Dichloropropane		BMDL	;
Trans-1,3-Dichloropropene	5	BMDL	
Trichloroethylene		BMDL	
Benzene		BMDL	
Dibromochloromethane		BMDL	
1,1,2-Trichloroethane	5	BMDL	
Cis-1,3-Dichloropropene	5	BMDL	
2-Chloroethyl vinyl ether	10	BMDL	
Bromoform	5	BMDL	
1,1,2,2-Tetrachloroethane	5	BMDL	
Tetrachloroethylene	5	BMDL	
Toluene	5	BMDL	i
Chlorobenzene	5	BMDL	
Ethyl Benzene	5	BMDL	
Acrylonitrile	100	BMDL	
Acrolein	100	BMDL	
Dichlorodifluoromethane	ND ³		
		ĺ	·
			¹ MDL = Method Detection Limit
			² BMDL = Below Method Detection Limit
			³ ND = Not Determined
	<u> </u>		

Comments	-	 1	 -			
			:	-		
	 	 -	 		· .	
			1	-		· · · · · · · · · · · · · · · · · · ·



GC/MS Report

Analyst	_W.	Dickens
Date of Analysis		9/5/84

Client _____ Reichhold Chemicals, Inc.

_Laboratory No. _____5200D_

Sample Description Water sample labeled B-1S

_			· · · · · · · · · · · · · · · · · · ·		
Compounds	MDL ¹ PPB	Conc. ² PPB	Compounds	MDL ¹ PPB	Conc. ² PPB
Bis (2-chloroethyl) ether 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bis (2-Chloroisopropyl) ether Hexachloroethane N-nitroso-di-n-propylamine Nitrobenzene Isophorone Bis (2-Chloroethoxy) methane 1,2,4-Trichlorobenzene Naphthalene Hexachlorobutadiene Hexachlorocylopentadiene 2-Chloronaphthalene Acenaphthylene Dimethylphthalate 2,6-Dinitrotoluene Acenaphthene 2,4-Dinitrotoluene Fluorene 4-Chlorophenyl phenyl ether Diethyl phthalate N-nitrosodiphenylamine ³ 1,2-Diphenylhydrazine ⁴ Other Compounds* Total Saturated Hydrocarbor	10 10 10 10 10 10 10 10 10 10 10 10 10 1	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	4-Bromophenyl phenyl ether Hexachlorobenzene Phenanthrene Anthracene Dibutyl phthalate Fluoranthene Pyrene Benzidine Butyl benzyl phthalate 2,3,7,8-Tetrachlorodibenzo-p-dioxin Benzo (a) anthracene Chrysene 3,3'-Dichlorobenzidine Bis (2-ethylhexyl) phthalate Di-n-octyl phthalate Benzo (b) fluoranthene Benzo (a) pyrene Indeno (1,2,3-cd) pyrene Dibenzo (a,h) anthracene Benzo (g,h,i) perylene N-nitrosodimethylamine Bis (chloromethyl) ether 1 MDL = Method Detection Limit 2 BMDL = Below Method Detection Limit 3 Detected as Diphenylamine 4 Detected as Azobenzene 5 ND = Not Determined	10 10 10 10 10 10 10 10 10 10 10 10 10 ND ⁵ ND ⁵	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL

Comments *Tentatively identified and quantitatively estimated.

CH2M ■ HILL

Client_

ACID COMPOUNDS

GC/MS Report

Analyst	W. Dickens	:
Date of Analysis _	9/5/84	
Laboratory No	5200D	-

Sample Description _

Water sample labeled B-1S

Reichhold Chemical, Inc.

	ļ	1	•
compounds	MDL ¹ PPB	Conc. ²	:
henol -Chlorophenol		BMDL	
-Nitrophenol		BMDL BMDL	
4-Dimethylphenol 4-Dichlorophenol	10	BMDL BMDL	
-Chloro-3-methylphenol	10	BMDL	
,4,6-Trichlorophenol ,4-Dinitrophenol		BMDL BMDL	
-Nitrophenol -Methyl-4,6-dinitrophenol	10	BMDL	
Pentachlorophenol		BMDL BMDL	
			:
•			
			1
			•
			· ·
			·
			:
			¹ MDL = Method Detection Limit
			² BMDL = Below Method Detection Limit

Comments		1	
	*	= -	



GC/MS Report

Analyst	M. Price
Date of Analysis	9/6/84

Client	Reichhold	Chemicais,	inc
•			

Laboratory No. 5200B

Sample Description Water sample labeled B-1D

	1 · · · · · · · · · · · · · · · · · · ·	7	
Compounds	MDL ¹ PPB	Conc. ² PPB	
Chloromethane	10	BMDL	
Bromomethane	10	BMDL	
Vinyl Chloride	10	BMDL	
Chloroethane	10	BMDL	
Methylene Chloride	5	ND	
Trichlorofluoromethane	5	BMDL	
1,1-Dichloroethene	5	BMDL	
1,1-Dichloroethane		BMDL	,
Trans-1,2-Dichloroethene	5	BMDL	
Chloroform	5	BMDL	·
1,2-Dichloroethane	5	BMDL	
1,1,1-Trichloroethane	5	BMDL	
Carbon Tetrachloride	5	BMDL	
Bromodichloromethane	5	BMDL	
1,2-Dichloropropane	5	BMDL	
Trans-1,3-Dichloropropene	5	BMDL	
Trichloroethylene	5	BMDL	
Benzene	5	BMDL	,
Dibromochloromethane	5	BMDL	:
1,1,2-Trichloroethane	5	BMDL	·
Cis-1,3-Dichloropropene	5	BMDL	
2-Chloroethyl vinyl ether	10	BMDL	
Bromoform	5	BMDL	
1,1,2,2-Tetrachloroethane	5	BMDL	
Tetrachloroethylene		BMDL	
Toluene	1	BMDL	
Chlorobenzene		BMDL	
		BMDL	
Ethyl Benzene	1 -	BMDL	
Acrylonitrile		BMDL	,
Acrolein	ND ³	BMDL	
Dichlorodifluoromethane	ND.		·
			·
			¹ MDL = Method Detection Limit
			² BMDL = Below Method Detection Limit
			³ ND = Not Determined
	<u> </u>	<u> </u>	

Comments	·	
		±"



Client _

BASE/NEUTRAL COMPOUNDS

GC/MS Report

Analyst	W.	Dickens
Date of Analysis		9/5/84

Date of Analysis ___ Reichhold Chemicals, Inc.

Laboratory No. _ 5200B

Sample Description Water sample labeled B-1D

						- 1.5
Compounds	MDL ¹ PPB	Conc. ² PPB		Compounds	MDL ¹ PPB	Conc. ² PPB
Bis (2-chloroethyl) ether 1,3-Dichlorobenzene 1,4-Dichlorobenzene Bis (2-Chloroisopropyl) ether Hexachloroethane N-nitroso-di-n-propylamine Nitrobenzene Isophorone Bis (2-Chloroethoxy) methane 1,2,4-Trichlorobenzene Naphthalene Hexachlorobutadiene Hexachlorocylopentadiene 2-Chloronaphthalene Acenaphthylene Dimethylphthalate 2,6-Dinitrotoluene Acenaphthene 2,4-Dinitrotoluene Fluorene 4-Chlorophenyl phenyl ether Diethyl phthalate N-nitrosodiphenylamine ³ 1,2-Diphenylhydrazine ⁴ Other Compounds* Total Saturated Hydrocarbon	10 10 10 10 10 10 10 10 10 10 10 10 10 1	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	Hexace Phena Anthropibut Fluora Pyrena Benzia Butyl 2,3,7,8 Benzia Chrys 3,3'-D Bis (2 Di-n-c Benzia Benzia Inden Diber Benzia Inden Diber Benzia Inden Diber Benzia Inden Diber Benzia Inden Diber Benzia Inden Diber Benzia Inden Diber Benzia Inden Diber Benzia Inden Diber Benzia Inden Diber Benzia Inden Diber Benzia Inden Diber Benzia Inden Diber Benzia Inden Diber Benzia Inden Diber Benzia Inden Ind	dine benzyl phthalate 3-Tetrachlorodibenzo-p-dioxin 5 (a) anthracene	10 10 10 10 10 10 10 10 10 10 10 10 10 1	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL

Comments *Tentatively identified and quantitatively estimated.

CH2M ■ HILL

Client_

ACID COMPOUNDS

Reichhold Chemical, Inc.

GC/MS Report

<u>W.</u>	Dickens
	9/5/84
	5200B
	W.

Sample Description Water sample labeled B-1D

		1	
Compounds	MDL ¹	Conc. ²	
Phenol 2-Chlorophenol 2-Nitrophenol 2-4-Dimethylphenol 2-4-Dichlorophenol 4-Chloro-3-methylphenol 2,4,6-Trichlorophenol 2,4-Dinitrophenol 4-Nitrophenol 2-Methyl-4,6-dinitrophenol Pentachlorophenol	10 10 10 10 10 10 10 50	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	
·	10	BMDL	
	-		
			¹ MDL = Method Detection Limit
			² BMDL = Below Method Detection Limit

Comments		-	
		-	
	*		



GC/MS Report

Analyst H. Cole

Date of Analysis 9/11/84

Client ₋	Reichhold	Chemic	ais, ii	ic.	Laborato	orv No	52000
		-		1	•	,	-

Sample Description Water sample labeled B-2S

	1	7		<u> — т</u>
Compounds	MDL¹ PPB	Conc. ² PPB	Other Compounds**	PPB
Chloromethane	50	BMDL	Cyclopentane	210
Bromomethane	50	BMDL	Cyclopentene	330
Vinyl Chloride	50	BMDL	Xylenes	130
Chloroethane	50	BMDL	Ayleries	130
Methylene Chloride	25	ND	;	
Trichlorofluoromethane	25	BMDL	:	
1,1-Dichloroethene	25	BMDL	:	
1,1-Dichloroethane	25	BMDL		
Trans-1,2-Dichloroethene	25	BMDL	•	
Chloroform	25	BMDL	-	j
1,2-Dichloroethane	25	BMDL		İ
1,1,1-Trichloroethane	25	BMDL	·	
Carbon Tetrachloride	25	BMDL	!	
Bromodichloromethane	25	BMDL		
1,2-Dichloropropane	25	BMDL		
Trans-1,3-Dichloropropene	25	BMDL	:	
Trichloroethylene	25	BMDL		
Benzene	25	440		
Dibromochloromethane	25	BMDL		
1,1,2-Trichloroethane	25	BMDL		
Cis-1,3-Dichloropropene	25	BMDL]
2-Chloroethyl vinyl ether	50	BMDL		
Bromoform	25	BMDL	:	1
1,1,2,2-Tetrachloroethane	25	BMDL		
Tetrachloroethylene	25	BMDL		
Toluene	25	SMDL		
Chlorobenzene	25	BMDL	••	
Ethyl Benzene	25	46		
Acrylonitrile	500	BMDL		
Acrolein	500			
Dichlorodifluoromethane	ND ³	BMDL	i	ĺ
Dichlorodinuoromethane	ן אט		·	
	1		·	
]	;	
			¹ MDL = Method Detection Limit	
			² BMDL = Below Method Detection Limit	
			³ ND = Not Determined	
	<u> </u>			

Comments _	*Presence	indicated,	but	less	than	the	stated	method	detection	limit.	
						:					-



GC/MS Report

Analyst _______ W. Dickens

Date of Analysis ______ 9/10/84

Laboratory No. ______ 52000

Client ______Sample Description _

Water sample labeled B-2S

Reichhold Chemicals, Inc.

Compounds	MBF1	Conc.2	Compounds	MDL ¹ PPB	Conc. ² PPB
Bis (2-chloroethyl) ether 1,3-Dichlorobenzene 1,4-Dichlorobenzene Bis (2-Chloroisopropyl) ether Hexachloroethane N-nitroso-di-n-propylamine Nitrobenzene Isophorone Bis (2-Chloroethoxy) methane 1,2,4-Trichlorobenzene Naphthalene Hexachlorobutadiene Hexachlorocylopentadiene 2-Chloronaphthalene Acenaphthylene Dimethylphthalate 2,6-Dinitrotoluene Acenaphthene 2,4-Dinitrotoluene Fluorene 4-Chlorophenyl phenyl ether Diethyl phthalate N-nitrosodiphenylamine³ 1,2-Diphenylhydrazine⁴ Other Compounds** Trimethyl-2-cyclopenten-1-or α,α-4-Trimethyl cyclohexane- methanol	10 10 10 10 10 10 10 10 10 10 10 10 10 1	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	4-Bromophenyl phenyl ether Hexachlorobenzene Phenanthrene Anthracene Dibutyl phthalate Fluoranthene Pyrene Benzidine Butyl benzyl phthalate 2,3,7,8-Tetrachlorodibenzo-p-dioxin Benzo (a) anthracene Chrysene 3,3'-Dichlorobenzidine Bis (2-ethylhexyl) phthalate Di-n-octyl phthalate Benzo (b) fluoranthene Benzo (a) pyrene Indeno (1,2,3-cd) pyrene Dibenzo (a,h) anthracene Benzo (g,h,i) perylene N-nitrosodimethylamine Bis (chloromethyl) ether 1MDL = Method Detection Limit 2BMDL = Below Method Detection Limit 3Detected as Diphenylamine 4Detected as Azobenzene 5ND = Not Determined	10 10 10 10 10 10 10 10 10 10 10 10 10 ND ⁵ ND ⁵	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL

Comments	*Presence	indicated,	but	less	than	the	stated	method	detection	limit.	
				-				-			- :
	**Tentative	ly identifie	ed an	id au	iantita	ative	lv esti	mated.			



ACID COMPOUNDS

GC/MS Report

Analyst	W. Dickens
Date of Analysis _	9/10/84
_Laboratory No	5200O

Client _ Water sample labeled B-2S Sample Description ___

Reichhold Chemical, Inc.

Compounds MDL¹ Conc.² PPB PPB Phenol 10 BMDL 2-Chlorophenol BMDL 10 2-Nitrophenol 10 BMDL 2-4-Dimethylphenol 10 BMDL 2-4-Dichlorophenol 10 BMDL 4-Chloro-3-methylphenol 10 BMDL 2,4,6-Trichlorophenol 10 BMDL 2,4-Dinitrophenol 50 BMDL 4-Nitrophenol BMDL 10 2-Methyl-4,6-dinitrophenol 50 BMDL Pentachlorophenol 10 BMDL ¹MDL = Method Detection Limit ²BMDL = Below Method Detection Limit

Comments					
	:				
		-	= -5 .	* .	



GC/MS Report

Analyst M. Price

Date of Analysis 9/10/84

Client	Kelcinola	Criemicals,	HIC
Chone		·	

Laboratory No. 52001

Sample Description Water sample labeled B-3S

		·		
Compounds	MDL ¹ PPB	Conc.² PPB	Other Compounds*	PPI
Chloromethane		BMDL	Cyclopentene	230
Bromomethane		BMDL	Pentene	46
Vinyl Chloride		BMDL	2-Methyl-2-butene	23
Chloroethane		BMDL	Pentadiene	69
Methylene Chloride	150		Xylenes	1100
Trichlorofluoromethane		BMDL		ļ
1,1-Dichloroethene		BMDL		
1,1-Dichloroethane		BMDL	:	
Trans-1,2-Dichloroethene		BMDL	;	
Chloroform		BMDL		
1,2-Dichloroethane	150	BMDL	,	
1,1,1-Trichloroethane	150	BMDL		
Carbon Tetrachloride	150	BMDL		
Bromodichloromethane	150	BMDL		
1,2-Dichloropropane	150	BMDL	·	
Trans-1,3-Dichloropropene	150	BMDL		
Trichloroethylene	150	BMDL	•	
Benzene	150			
Dibromochloromethane	150	BMDL	:	
1,1,2-Trichloroethane	150	BMDL		
Cis-1,3-Dichloropropene	150	BMDL		
2-Chloroethyl vinyl ether	300	BMDL	:	
Bromoform *	150	BMDL	a i	
1,1,2,2-Tetrachloroethane	150	BMDL	_	
Totrophloroothylono	150	BMDL	, company	
Toluene	150	3800		
Chlorobenzene		BMDL	:	
Ethyl Benzene	150	2800	,	
Acrylonitrile		BMDL		
Acrolein	3000		·	
Dichlorodifluoromethane	ND ³			
	'		,	
			ŧ	
•				f
			¹ MDL = Method Detection Limit	
			² BMDL = Below Method Detection Limit	
			³ ND [‡] Not Determined	
1		1		

*Tentatively identified and quantitatively estima



GC/MS Report

Analyst	₩.	Dickens
Date of Analysis		9/6/84

Client _

Reichhold Chemicals, Inc.

____Laboratory No. ____

52001

Sample Description Water sample labeled B-3S

Compounds	MDL ¹ PPB	Conc. ² PPB	Compounds	MDL ¹ PPB	Conc. ²
Bis (2-chloroethyl) ether 1,3-Dichlorobenzene 1,4-Dichlorobenzene Bis (2-Chloroisopropyl) ether Hexachloroethane N-nitroso-di-n-propylamine Nitrobenzene Isophorone Bis (2-Chloroethoxy) methane 1,2,4-Trichlorobenzene Naphthalene Hexachlorocylopentadiene 2-Chloronaphthalene Acenaphthylene Dimethylphthalate 2,6-Dinitrotoluene Acenaphthene 2,4-Dinitrotoluene Fluorene 4-Chlorophenyl phenyl ether Diethyl phthalate N-nitrosodiphenylamine³ 1,2-Diphenylhydrazine⁴ Other Compounds* C_3-Benzene Acetophenone a,a-Dimethyl benzene methan Styrene	50 50 50 50 50 50 50 50 50 50 50 50 50 5	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	4-Bromophenyl phenyl ether Hexachlorobenzene Phenanthrene Anthracene Dibutyl phthalate Fluoranthene Pyrene Benzidine Butyl benzyl phthalate 2,3,7,8-Tetrachlorodibenzo-p-dioxin Benzo (a) anthracene Chrysene 3,3'-Dichlorobenzidine Bis (2-ethylhexyl) phthalate Di-n-octyl phthalate Benzo (b) fluoranthene Benzo (a) pyrene Indeno (1,2,3-cd) pyrene Dibenzo (a,h) anthracene Benzo (g,h,i) perylene N-nitrosodimethylamine Bis (chloromethyl) ether 1MDL = Method Detection Limit 2BMDL = Below Method Detection Limit 3Detected as Diphenylamine 4Detected as Azobenzene 5ND = Not Determined	50 50 200 50	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL

Comments _	*Tentatively	identified	and	quantitatively	es	tim	ated.	
				:			-	



ACID COMPOUNDS

GC/MS Report

Analyst	W. Dickens
Date of Analysis _	9/6/84
_Laboratory No	52001

Client _____ Reichhold Chemical, Inc.

Sample Description Water sample labeled B-3S

40				
Compounds	MDL ¹	Conc. ²		
Phenol 2-Chlorophenol	50	BMDL		
2-Nitrophenol	50 50	BMDL BMDL		
2-4-Dimethylphenol	50	BMDL		
2-4-Dichlorophenol 4-Chloro-3-methylphenol	50	BMDL		
2,4,6-Trichlorophenol	50 50	BMDL BMDL		ļ
2,4-Dinitrophenol 4-Nitrophenol	250	BMDL		
2-Methyl-4,6-dinitrophenol	50 250	BMDL BMDL		
Pentachlorophenol	50	BMDL	:	
	•		·	
			:	
				į
			·	
			¹ MDL = Method Detection Limit	
			² BMDL = Below Method Detection Limit	
T.				

Comments					
	\$, v /	-	-	



GC/MS Report

Analyst	M. Price
Date of Analysis	9/6/84
Laboratory No.	5200C

Client	Reichhold	Chemicais,	. 1
JIICH	 		

_Laboratory No. _

Sample Description _	Water sample	labeled B-4D		 	
			- 	 ·	-
Compounds		OL¹ Conc.²			

	T	· · · · · ·			
Compounds	MDL ¹ PPB	Conc. ² PPB			
Chloromethane	10	BMDL	:		
Bromomethane	10	BMDL	1		
Vinyl Chloride	10	BMDL	•	1	
Chloroethane	10	BMDL	,	Ì	
Methylene Chloride	5	ND			
Trichlorofluoromethane	5	BMDL	·		
1,1-Dichloroethene	5	BMDL	1		
1,1-Dichloroethane	5	BMDL			
Trans-1,2-Dichloroethene	5	BMDL	;		
Chloroform	5	BMDL	•		
1,2-Dichloroethane	5	BMDL	:		
1,1,1-Trichloroethane	5	BMDL	1		
Carbon Tetrachloride	5	BMDL	•		
Bromodichloromethane	5	BMDL	•		ŀ
1,2-Dichloropropane	5	BMDL	i		
Trans-1,3-Dichloropropene	5	BMDL			
Trichloroethylene	5	BMDL			}
Benzene	5	BMDL	<u>'</u>		
Dibromochloromethane	5	BMDL			
1,1,2-Trichloroethane	5	BMDL		j	
Cis-1,3-Dichloropropene	5	BMDL		-	
2-Chloroethyl vinyl ether	10	BMDL	:		1
Bromoform	5	BMDL			1
1,1,2,2-Tetrachloroethane	5	BMDL	:		
Tetrachloroethylene	5	BMDL	,		
Toluene	5	BMDL			
Chlorobenzene	5	BMDL			
Ethyl Benzene	5	BMDL			Ì
Acrylonitrile	100	BMDL	•		
Acrolein	100	BMDL			
Dichlorodifluoromethane	ND ³	J Z			
Biomoroamaorometriarie	'				
•					
			1 3		
			,		
			¹ MDL = Method Detection Limit		
			² BMDL = Below Method Detection Limit		
	1				
			³ ND = Not Determined		
	1				

Comments	S	remon print 17	· · · · · · · · · · · · · · · · · · ·	
		1	y	
		 -	11.11	= 1-34



GC/MS Report

Analyst	w.	Dickens
Date of Analysis	-	9/5/84

Olletti	 	 	_	_	

Reichhold Chemicals, Inc. Laboratory No. _

5200C

Sample Description Water sample labeled B-4D

Compounds MDL¹ PPB Conc.² PPB Compounds PPB MDL PPB Bis (2-chloroethyl) ether 10 BMDL 4-Bromophenyl phenyl ether 10	Conc. ²
Ris (2-chloroethyl) ether 10 BMDL 4-Bromonhanyl phonyl ether 10	1110
Signature 10 10 10 10 10 10 10 1	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL

Comments *Tentatively identified and quantitatively estimated.



Client

ACID COMPOUNDS

GC/MS Report

Analyst	W. Dickens
Date of Analysis _	9/5/84
Laboratory No	5200C

Sample Description Water sample labeled B-4D

Reichhold Chemical, Inc.

Compounds		Conc.2
	PPB	PPB.
Phenol 2-Chlorophenol	10	BMDL
2-Nitrophenol	10 10	BMDL BMDL
2-4-Dimethylphenol	10	BMDL
2-4-Dichlorophenol 4-Chloro-3-methylphenol	10	BMDL BMDL
2,4,6-Trichlorophenol	10	BMDL
2,4-Dinitrophenol 4-Nitrophenol	50 10	BMDL
2-Methyl-4,6-dinitrophenol	50	BMDL BMDL
Pentachlorophenol	10	BMDL

Comments	:					
			- 10 p.s			
	· 1 4	·	- 1			



GC/MS Report

Analyst H. Cole

Date of Analysis 9/11/84

5200M

Client _____ Reichhold Chemicals, Inc.

Laboratory No. _____

Sample Description Water sample labeled B-5S

p	·				
Compounds	MDL¹ PPB	Conc. ² PPB	Other Compounds**		PPB
Chloromethane	100	BMDL	Cyclopentene		110
Bromomethane		BMDL	2-Methyl-1-butene	İ	65
Vinyl Chloride		BMDL	Dimethyl cyclopropane	İ	86
Chloroethane		BMDL	Cyclohexane		62
Methylene Chloride	50		2-Methyl-2-pentene		50
Trichlorofluoromethane	:	BMDL	Methyl cyclohexane		250
1,1-Dichloroethene		BMDL	Xylenes		9100
1,1-Dichloroethane		BMDL	Ayleries		9100
Trans-1,2-Dichloroethene	50		1		
Chloroform		BMDL	1		
l		BMDL	;		
1,2-Dichloroethane		BMDL			
1,1,1-Trichloroethane		BMDL	;		
Carbon Tetrachloride	1				
Bromodichloromethane		BMDL BMDL	;		
1,2-Dichloropropane					
Trans-1,3-Dichloropropene	•	BMDL *			
Trichloroethylene	50		;		
Benzene	50	240	:		
Dibromochloromethane		BMDL			
1,1,2-Trichloroethane	•	BMDL			
Cis-1,3-Dichloropropene		BMDL	· · · · · · · · · · · · · · · · · · ·		
2-Chloroethyl vinyl ether	4	BMDL)	
Bromoform		BMDL			
1,1,2,2-Tetrachloroethane	50	BMDL			
Tetrachloroethylene	50	*			
Toluene		1100			
Chlorobenzene		BMDL			
Ethyl Benzene	50	780			
Acrylonitrile	1000	BMDL		1	
Acrolein	1000	BMDL			
Dichlorodifluoromethane	ND ³				
			;		
		[
			_	j	
			¹ MDL = Method Detection Limit		
			² BMDL = Below Method Detection Limit		
			³ ND = Not Determined		
			14D - 140t Dotormined		
L	<u></u>		L		

Commonte	*Presence	indicated,	but	less	than	the	stated	method	detection	limit.
Comments _										



GC/MS Report

Analyst	W. Dickens
Date of Analysis	9/10/84

Client _____

Reichhold Chemicals, Inc.

____Laboratory No. ____

5200M

Sample Description Water sample labeled B-5S

Compounds	MDL ¹ PPB	Conc. ² PPB	Compounds	MDL ¹ PPB	Conc. ² PPB
Bis (2-chloroethyl) ether 1,3-Dichlorobenzene 1,4-Dichlorobenzene Bis (2-Chloroisopropyl) ether Hexachloroethane N-nitroso-di-n-propylamine Nitrobenzene Isophorone Bis (2-Chloroethoxy) methane 1,2,4-Trichlorobenzene Naphthalene Hexachlorobutadiene Hexachlorocylopentadiene 2-Chloronaphthalene Acenaphthylene Dimethylphthalate 2,6-Dinitrotoluene Acenaphthene 2,4-Dinitrotoluene Fluorene 4-Chlorophenyl phenyl ether Diethyl phthalate N-nitrosodiphenylamine³ 1,2-Diphenylhydrazine⁴ Other Compounds* Styrene Aniline C ₃ -Benzenes Měthyl aniline α,α-Dimethyl benzene methar	200 200 200 200 200 200 200 200 200 200	BMDL BMDL BMDL BMDL BMDL BMDL BMDL	4-Bromophenyl phenyl ether Hexachlorobenzene Phenanthrene Anthracene Dibutyl phthalate Fluoranthene Pyrene Benzidine Butyl benzyl phthalate 2,3,7,8-Tetrachlorodibenzo-p-dioxin Benzo (a) anthracene Chrysene 3,3'-Dichlorobenzidine Bis (2-ethylhexyl) phthalate Di-n-octyl phthalate Benzo (b) fluoranthene Benzo (k) fluoranthene Benzo (a) pyrene Indeno (1,2,3-cd) pyrene Dibenzo (a,h) anthracene Benzo (g,h,i) perylene N-nitrosodimethylamine Bis (chloromethyl) ether 1 MDL = Method Detection Limit 2 BMDL = Below Method Detection Limit 3 Detected as Diphenylamine 4 Detected as Azobenzene 5 ND = Not Determined	200 200 200 200 200 200 200 200 200 200	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL

Comments *Tentatively	identified	and	quantitati	vely	estimated.

CH2M

Client __

ACID COMPOUNDS

GC/MS Report

W. Dickens
9/10/84
5200M

Sample Description Water sample labeled B-5S

Reichhold Chemical, Inc.

Compounds	NADI 1	02		
Compounds		Conc. ²	:	
	PPB	PPB		
Phenol	200	BMDL		ļ
2-Chlorophenol	200	BMDL		1
2-Nitrophenol	200	BMDL		
2-4-Dimethylphenol	200	BMDL		
2-4-Dichlorophenol	200	BMDL		
4-Chloro-3-methylphenol		BMDL		
2,4,6-Trichlorophenol		BMDL	·	
2,4-Dinitrophenol	1000	BMDL	1	
4-Nitrophenol		BMDL	:	
2-Methyl-4,6-dinitrophenol		BMDL		
Pentachlorophenol	200	BMDL	;	
				ļ
	1		;	j
			;	
	-			
			!	
			t .	4
				1
			:	[
			:	
			<u>:</u>	
			:	
			:	
•			· ·	
			<u> </u>	
	İ		¹ MDL = Method Detection Limit	
			² BMDL = Below Method Detection Limit	
			2.7.02 Solot Monda Batcaton Limit	
			,	

	-	
Comments _		
	1	
		<u> </u>



GC/MS Report

Analyst H. Cole

Date of Analysis 9/11/84

Client _____ Reichhold Chemicals, Inc.

Laboratory No. _____5200N

Sample Description Water sample labeled B-6S

		,			
Compounds	MDL ¹ PPB	Conc. ² PPB	Other Compounds**		PPB
Chloromethane	100	BMDL	Cyclopentene		3100
Bromomethane		BMDL	Pentadiene		7000
Vinyl Chloride		BMDL	2-Methyl butene	1	3400
		BMDL	Dimethyl cyclopropane		2100
Chloroethane	50	ND	Cyclohexane		
Methylene Chloride		BMDL	Hexadiene		1600
Trichlorofluoromethane					2900
1,1-Dichloroethene		BMDL	Xylenes	58	8000
1,1-Dichloroethane		BMDL	:		
Trans-1,2-Dichloroethene	50	140	,		
Chloroform		BMDL	1		
1,2-Dichloroethane		BMDL			
1,1,1-Trichloroethane		BMDL			
Carbon Tetrachloride		BMDL			
Bromodichloromethane		BMDL			
1,2-Dichloropropane		BMDL	1		
Trans-1,3-Dichloropropene		BMDL	i		
Trichloroethylene		BMDL	'		
Benzene	50	7700			
Dibromochloromethane	50	BMDL	;		
1,1,2-Trichloroethane	50	BMDL	·		
Cis-1,3-Dichloropropene	50	BMDL	:		
2-Chloroethyl vinyl ether	100	BMDL		1	
Bromoform	50	BMDL	t .		
1,1,2,2-Tetrachloroethane		BMDL			
Tetrachloroethylene		BMDL	'		
Toluene	l .	2400			
Chlorobenzene	1	BMDL	, i		
Ethyl Benzene	1	7700			
Acrylonitrile		BMDL		.	
Acrolein	1000	BMDL	i '		
Dichlorodifluoromethane	ND ³	DIVIDE			
Dichiorodilluoromethane	ן אט			1	
			! :		
·			¹ MDL = Method Detection Limit		
			!		
			² BMDL = Below Method Detection Limit		
			³ ND = Not Determined		
	<u> </u>	<u> </u>			

Comments X TENTATIVELY IDENTIFIED AND QUANTITATIVELY
ESTIMATED



GC/MS Report

Analyst ______ W. Dickens

Date of Analysis ______9/10/84

Client _____K

Reichhold Chemicals, Inc.

_Laboratory No. ____

5200N

Sample Description Water sample labeled B-6S

Compounds	MDL¹ PPB	Conc. ² PPB	Compounds	MDL¹ PPB	Conc. ² PPB
Bis (2-chloroethyl) ether 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bis (2-Chloroisopropyl) ether Hexachloroethane N-nitroso-di-n-propylamine Nitrobenzene Isophorone Bis (2-Chloroethoxy) methane 1,2,4-Trichlorobenzene Naphthalene Hexachlorobutadiene Hexachlorobutadiene Hexachlorocylopentadiene 2-Chloronaphthalene Acenaphthylene Dimethylphthalate 2,6-Dinitrotoluene Acenaphthene 2,4-Dinitrotoluene Fluorene 4-Chlorophenyl phenyl ether Diethyl phthalate N-nitrosodiphenylamine ³ 1,2-Diphenylhydrazine ⁴	200 200 200 200 200 200 200 200 200 200	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	4-Bromophenyl phenyl ether Hexachlorobenzene Phenanthrene Anthracene Dibutyl phthalate Fluoranthene Pyrene Benzidine Butyl benzyl phthalate 2,3,7,8-Tetrachlorodibenzo-p-dioxin Benzo (a) anthracene Chrysene 3,3'-Dichlorobenzidine Bis (2-ethylhexyl) phthalate Di-n-octyl phthalate Benzo (b) fluoranthene Benzo (a) pyrene Indeno (1,2,3-cd) pyrene Dibenzo (a,h) anthracene Benzo (g,h,i) perylene N-nitrosodimethylamine Bis (chloromethyl) ether	200 200 200 200 200 200 200 200 200 200	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL
2-Methylcyclopenten-1-one C ₃ -Benzenes Trimethyl-2-cyclopenten-1-on Acetophenone α,α-Dimethyl benzene methan		300 360 1400 660 1400	¹ MDL = Method Detection Limit ² BMDL = Below Method Detection Limit ³ Detected as Diphenylamine ⁴ Detected as Azobenzene ⁵ ND = Not Determined		

Comments *Tentatively identified and quantitatively estimated.



Client

ACID COMPOUNDS

GC/MS Report

Analyst	W. Dickens
Date of Analysis	9/10/84
Laboratory No	5200N

Sample Description ____W

Water sample labeled B-6S

Reichhold Chemical, Inc.

Comments		 	



Client

VOLATILE COMPOUNDS

GC/MS Report

Analyst	M. Price
Date of Analysis	9/10/84
Laboratory No	5200J

Sample Description Water sample labeled B-6D

Reichhold Chemicals, Inc.

Octobra de la constanta de la	MAD! 1	Cono		
Compounds	PPB	PPB	Other Compounds**	PPB
Chloromethane Bromomethane Vinyl Chloride Chloroethane Methylene Chloride Trichlorofluoromethane 1,1-Dichloroethane Trans-1,2-Dichloroethene Chloroform 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethane 1,2-Dichloropropane Trans-1,3-Dichloropropene Trichloroethylene Benzene Dibromochloromethane 1,1,2-Trichloroethane Cis-1,3-Dichloropropene 2-Chloroethyl vinyl ether Bromoform 1,1,2,2-Tetrachloroethane Tetrachloroethylene Toluene Chlorobenzene Ethyl Benzene Acrylonitrile Acrolein Dichlorodifluoromethane		Conc. ² PPB BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMD	Other Compounds** Cyclopentene Xylenes	PPB 13 130
			¹ MDL = Method Detection Limit ² BMDL = Below Method Detection Limit ³ ND = Not Determined	

*Presence indicated, but less than the stated method detection limit. Comments _

**Tentatively identified and quantitatively estimated.



GC/MS Report

Analyst ______ W. Dickens

Date of Analysis ______ 9/6/84

Laboratory No. ______ 5200J

Client _____Sample Description _

Water sample labeled B-6D

Reichhold Chemicals, Inc.

Compounds	MDI 1	Conc ²	Compounds	MDI 1	Conc.2
Compounds	MDL ¹ PPB	Conc. ² PPB	Compounds	PPB	PPB
Bis (2-chloroethyl) ether 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bis (2-Chloroisopropyl) ether Hexachloroethane N-nitroso-di-n-propylamine Nitrobenzene Isophorone Bis (2-Chloroethoxy) methane 1,2,4-Trichlorobenzene Naphthalene Hexachlorobutadiene Hexachlorocylopentadiene 2-Chloronaphthalene Acenaphthylene Dimethylphthalate 2,6-Dinitrotoluene Acenaphthene 2,4-Dinitrotoluene Fluorene 4-Chlorophenyl phenyl ether Diethyl phthalate N-nitrosodiphenylamine ³ 1,2-Diphenylhydrazine ⁴ Other Compounds** Hexadecanoic Acid Hexadecenoic Acid Total Saturated Hydrocarbor	10 10 10 10 10 10 10 10 10 10 10 10 10 1	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	4-Bromophenyl phenyl ether Hexachlorobenzene Phenanthrene Anthracene Dibutyl phthalate Fluoranthene Pyrene Benzidine Butyl benzyl phthalate 2,3,7,8-Tetrachlorodibenzo-p-dioxin Benzo (a) anthracene Chrysene 3,3'-Dichlorobenzidine Bis (2-ethylhexyl) phthalate Di-n-octyl phthalate Benzo (b) fluoranthene Benzo (a) pyrene Indeno (1,2,3-cd) pyrene Dibenzo (a,h) anthracene Benzo (g,h,i) perylene N-nitrosodimethylamine Bis (chloromethyl) ether 1MDL = Method Detection Limit 2BMDL = Below Method Detection Limit 3Detected as Diphenylamine 4Detected as Azobenzene 5ND = Not Determined	10 10 10 10 10 10 10 10 10 10 10 10 10 1	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL

Comments *Presence indicated, but less than the stated method detection limit.

^{**}Tentatively identified and quantitatively estimated.

CH2M ■ HILL

Client __

ACID COMPOUNDS

GC/MS Report

Analyst	W. Dickens
Date of Analysis _	9/6/84
_Laboratory No	5200J

Sample Description Water sample labeled B-6D

Reichhold Chemical, Inc.

Compounds	MDL ¹	Conc. ²	
Phenol 2-Chlorophenol 2-Nitrophenol 2-4-Dimethylphenol 2-4-Dichlorophenol 4-Chloro-3-methylphenol 2,4,6-Trichlorophenol 2,4-Dinitrophenol 4-Nitrophenol 2-Methyl-4,6-dinitrophenol Pentachlorophenol	10 10 10 10 10 10 10 50 10	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	
4. 0. 14 7488.)
			¹ MDL ≈ Method Detection Limit ² BMDL = Below Method Detection Limit

Commonto		
Comments		
	•	e :
		4.0



GC/MS Report

Analyst	M. Price			
Date of Analysis	9/10/84			
_Laboratory No	5200F			

Client _____ Reichhold Chemicals, Inc.

Sample Description Water sample labeled W-7S

·	<u> </u>	7T					r	
Compounds	MDL ¹ PPB	Conc. ² PPB						
Chloromethane	10	BMDL						
Bromomethane	10	BMDL		•				
Vinyl Chloride	10	BMDL		· ·				
Chloroethane	10	BMDL		•				
Methylene Chloride	5	ND						
Trichlorofluoromethane	5	BMDL			•			<u> </u>
1,1-Dichloroethene	5 5	BMDL BMDL		,				
1,1-Dichloroethane	5	BMDL		:				
Trans-1,2-Dichloroethene	5	BMDL						
Chloroform	5	BMDL						<u> </u>
1,2-Dichloroethane 1,1,1-Trichloroethane	5	BMDL		:				
Carbon Tetrachloride	5	BMDL						
Bromodichloromethane	5	BMDL		•				
1,2-Dichloropropane	5	BMDL		:				
Trans-1,3-Dichloropropene	5	BMDL						
Trichloroethylene	5	BMDL				-		
Benzene	5	BMDL		· ·				
Dibromochloromethane	5	BMDL						ļ
1,1,2-Trichloroethane	5	BMDL		•				
Cis-1,3-Dichloropropene	5	BMDL					ļ	
2-Chloroethyl vinyl ether	10	BMDL		:				
Bromoform *	5	BMDL	4	!			l	
1,1,2,2-Tetrachioroethane	5 5	BMDL BMDL	÷.	!	0			ŀ
Tetrachloroethylene Toluene	5	BMDL) - Africage		·			
Chlorobenzene	5	BMDL	14.5			. 41.		
Ethyl Benzene	5	BMDL						
Acrylonitrile	100	BMDL		1				
Acrolein	100	BMDL		:				
Dichlorodifluoromethane	ND ³			1				
							1	
				•	٠			
			¹ MD	L = Method De	etection Limit			
			² BMI	DL = Below Me	ethod Detection	Limit		
			³ ND	⊨ Not Determi	ned			
	<u> </u>	1		·				

Comments	•		124 4 m W	
		! ·	·	-
	•		'	



Client _

BASE/NEUTRAL COMPOUNDS

GC/MS Report

Analyst	W.	Dickens
Date of Analysis _		9/5/84
Laboratory No		5200F

Sample Description Water sample labeled W-7S

Reichhold Chemicals, Inc.

Compounds		Conc.2	Compounds	MDL1	2 1
	PPB 10	PPB BMDL		PPB	PPB
Bis (2-chloroethyl) ether	10	BMDL	4-Bromophenyl phenyl ether Hexachlorobenzene	10	BMDL BMDL
1,3-Dichlorobenzene 1,4-Dichlorobenzene	10	BMDL	Phenanthrene	10	BMDL
1,2-Dichlorobenzene	10	BMDL	Anthracene	10	BMDL
Bis (2-Chloroisopropyl) ether	10	BMDL	Dibutyl phthalate	10	BMDL
Hexachloroethane	10	BMDL	Fluoranthene	10	BMDL
N-nitroso-di-n-propylamine	10	BMDL	Pyrene	10	BMDL
Nitrobenzene	10	BMDL	Benzidine	40	BMDL
Isophorone	10	BMDL	Butyl benzyl phthalate	10	BMDL
Bis (2-Chloroethoxy) methane	10 10	BMDL BMDL	2,3,7,8-Tetrachlorodibenzo-p-dioxin	10	BMDL
1,2,4-Trichlorobenzene	10	BMDL	Benzo (a) anthracene	10	BMDL
Naphthalene	10	BMDL	Chrysene	10 40	BMDL BMDL
Hexachlorobutadiene Hexachlorocylopentadiene	10	BMDL	3,3'-Dichlorobenzidine Bis (2+ethylhexyl) phthalate	10	BMDL
2-Chloronaphthalene	10	BMDL	Di-n-octyl phthalate	10	BMDL
Acenaphthylene	10	BMDL	Benzo (b) fluoranthene	10	BMDL
Dimethylphthalate	10	BMDL	Benzo (k) fluoranthene	10	BMDL
2,6-Dinitrotoluene	10	BMDL	Benzo (a) pyrene	10	BMDL
Acenaphthene	10	BMDL	Indeno (1,2,3-cd) pyrene	10	BMDL
2,4-Dinitrotoluene	10	BMDL	Dibenzo (a,h) anthracene	10	BMDL
Fluorene		BMDL	Benzo (g,h,i) perylene	10_	BMDL
4-Chlorophenyl phenyl ether		BMDL	N-nitrosodimethylamine	ND ₅	
Diethyl phthalate	10 10	BMDL BMDL	Bis (chloromethyl) ether	ND ⁵	
N-nitrosodiphenylamine ³ 1,2-Diphenylhydrazine ⁴		BMDL			
1,2-Diphenylhydrazine ⁴	'0	DINIDE			
Other Compounds*			,		
Total Saturated Hydrocarbon	 \$	54			
				1	
			¹ MDL = Method Detection Limit		
			² BMDL = Below Method Detection Limit		ł
		1	³ Detected as Diphenylamine		
			⁴ Detected as Azobenzene		
			⁵ ND = Not Determined		

Comment	*Tentatively	identified and	quantitatively	estimated.	
			1		
			1		

CH2M ■■HILL

ACID COMPOUNDS

GC/MS Report

Analyst	<u>W.</u>	Dickens
Date of Analysis _		9/5/84

Client _____ Reichhold Chemical, Inc.

_Laboratory No. _____5200F

Sample Description Water sample labeled W-7S

		T T		<u></u>				
Compounds	MDL ¹	Conc. ²						
Phenol 2-Chlorophenol 2-Nitrophenol 2-4-Dimethylphenol 2-4-Dichlorophenol 4-Chloro-3-methylphenol 2,4,6-Trichlorophenol 2,4-Dinitrophenol 4-Nitrophenol 2-Methyl-4,6-dinitrophenol Pentachlorophenol	10 10 10 10 10 10 10 50 10	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL						
rentachiorophenoi	10	BMDL						
ð								
en e sa e se se se se se se se se se se se se s			5		*			
			¹ MDL = Method Detection Limit ² BMDL = Below Method Detection Limit					

Comments	-		· · · · · ·	 s e ¹ the t	- · · · · · · · · · · · · · · · · · · ·
			!		
			i	 •	
		· · ·	i	 	



GC/MS Report

Analyst	M. Price
Date of Analysis	9/10/84
_Laboratory No	5200 G

Reichhold Chemicals, Inc. Client _ Sample Description ____

Water sample labeled W-8S

	·	7	
Compounds	MDL ¹ PPB	Conc. ² PPB	
Chloromethane	10	BMDL	
Bromomethane	10	BMDL	
Vinyl Chloride	10	BMDL	
Chloroethane	10	BMDL	
Methylene Chloride	5	ND	
Trichlorofluoromethane	5	BMDL	
1,1-Dichloroethene		BMDL	
1,1-Dichloroethane	5	BMDL	
Trans-1,2-Dichloroethene	5	BMDL	1
Chloroform	5	BMDL	1 1
1,2-Dichloroethane		BMDL	1 1
1,1,1-Trichloroethane		BMDL	
Carbon Tetrachloride		BMDL	
Bromodichloromethane		BMDL	
1,2-Dichloropropane		BMDL	
Trans-1,3-Dichloropropene		BMDL	
Trichloroethylene	5	BMDL	
Benzene	5	BMDL	
Dibromochloromethane		BMDL	
1,1,2-Trichloroethane	5	BMDL	
Cis-1,3-Dichloropropene	1	BMDL	
2-Chloroethyl vinyl ether	10	BMDL	,
Bromoform *	5	BMDL	
Diomoionii .	5	BMDL	:
man	5	BMDL	
Tetrachloroethylene Toluene	5	BMDL	
	1	BMDL	5 '
Chlorobenzene		BMDL	
Ethyl Benzene	l .	BMDL	
Acrylonitrile	100	BMDL	
Acrolein		BMDL	
Dichlorodifluoromethane	ND ³		
			¹ MDL = Method Detection Limit
			² BMDL = Below Method Detection Limit
	}		³ ND ≠ Not Determined
			, is not solonimod

Comments			
		 ::	-
	·		



BASE/NEUTRAL COMPOUNDS

GC/MS Report

Analyst	W.	Dickens

Date of Analysis _

9/6/84

Client _____

Reichhold Chemicals, Inc.

Laboratory No. _____

5200G

Sample Description Water sample labeled W-8S

Compounds	MDL¹ PPB	Conc. ² PPB	Compounds	MDL¹ PPB	Conc. ² PPB
Bis (2-chloroethyl) ether 1,3-Dichlorobenzene 1,4-Dichlorobenzene Bis (2-Chloroisopropyl) ether Hexachloroethane N-nitroso-di-n-propylamine Nitrobenzene Isophorone Bis (2-Chloroethoxy) methane 1,2,4-Trichlorobenzene Naphthalene Hexachlorobutadiene Hexachlorocylopentadiene 2-Chloronaphthalene Acenaphthylene Dimethylphthalate 2,6-Dinitrotoluene Acenaphthene 2,4-Dinitrotoluene Fluorene 4-Chlorophenyl phenyl ether Diethyl phthalate N-nitrosodiphenylamine³ 1,2-Diphenylhydrazine⁴ Other Compounds* Total Saturated Hydrocarbor	10 10 10 10 10 10 10 10 10 10 10 10 10 1	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	4-Bromophenyl phenyl ether Hexachlorobenzene Phenanthrene Anthracene Dibutyl phthalate Fluoranthene Pyrene Benzidine Butyl benzyl phthalate 2,3,7,8-Tetrachlorodibenzo-p-dioxin Benzo (a) anthracene Chrysene 3,3'-Dichlorobenzidine Bis (2-ethylhexyl) phthalate Di-n-octyl phthalate Benzo (b) fluoranthene Benzo (a) pyrene Indeno (1,2,3-cd) pyrene Dibenzo (a,h) anthracene Benzo (g,h,i) perylene N-nitrosodimethylamine Bis (chloromethyl) ether 1MDL = Method Detection Limit 2BMDL = Below Method Detection Limit 3Detected as Diphenylamine 4Detected as Azobenzene 5ND = Not Determined	10 10 10 10 10 10 10 10 10 10 10 10 10 1	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL

Comments *Tentatively identified and quantitatively estimated.

CH2M ■■ HILL

Comments _

ACID COMPOUNDS

GC/MS Report

Analyst	W.	Dickens
A 14		0/6/04
Date of Analysis		9/6/84

Client _____ Reichhold Chemical, Inc.

Laboratory No. 5200G

Sample Description Water sample labeled W-8S

			· ·
Compounds	MDL ¹	Conc. ²	
Phenol 2-Chlorophenol 2-Nitrophenol 2-4-Dimethylphenol 2-4-Dichlorophenol 4-Chloro-3-methylphenol 2,4,6-Trichlorophenol 2,4-Dinitrophenol 4-Nitrophenol 2-Methyl-4,6-dinitrophenol Pentachlorophenol	10 10 10 10 10 10 10 50 10	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	
は、 P. Tren では では では では では では では では では では			
			¹ MDL = Method Detection Limit ² BMDL = Below Method Detection Limit



GC/MS Report

Analyst M. Price

Date of Analysis 9/10/84

Client _____ Reichhold Chemicals, Inc.

Laboratory No. 5200H

Sample Description Water sample labeled Wess

+95

Compounds MDL Conc. PPB PPB Other Compounds* PPB Cyclopentene 76 PPB Other Compounds* PPB PPB Other Compounds* PPB Other Compounds* PPB Other Compounds* PPB Other Compounds* PPB Other Compounds* PPB Other Compounds* PPB Other Compounds* PPB Other Compounds* PPB Other Compounds* PPB Other Compounds* PPB Other Compounds* PPB Other Compounds* PPB Other Compounds* PPB Other Compounds* PPB Other Compounds* PPB Other Compounds* PPB Other Compounds* PPB PPB Other Compounds* PPB Other Compounds* PPB PPB Other Compounds* PPB PPB Other Compounds* PPB PPB Other Compounds* PPB PPB Other Compounds* PPB PPB Other Compounds* PPB PPB Other Compounds* PPB PPB Other Compounds* PPB PPB Other Compounds* PPB PPB Other Compounds* PPB PPB PPB Other Compounds* PPB			,		· · ·	
Bromomethane Vinyl Chloride Chloroethane Methylene Chloride Trichlorofluoromethane 1,1-Dichloroethane Trans-1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloropropane Trans-1,3-Dichloropropene Trinchloroethylene Benzene Dibromomchloromethane Cis-1,3-Dichloropropene Trichloroethylene Benzene Dibromofloromethane Cis-1,3-Dichloropropene Trichloroethylene Benzene Dibromofloromethane 1,1,2-Trichloroethane Cis-1,3-Dichloropropene 2-Chloroethylene Benzene Dibromofloromethane Cis-1,3-Dichloropropene T-trichloroethylene Benzene Dibromofloromethane Cis-1,3-Dichloropropene Clobronomothoromethane Cis-1,3-Dichloropropene Clobrobenzene Ethyl Benzene Acrylonitrile Acrolein Dichlorodifluoromethane Dichlorodifl	Compounds	MDL ¹ PPB	Conc.² PPB			PPB
¹ MDL = Method Detection Limit ² BMDL = Below Method Detection Limit ³ ND = Not Determined	Bromomethane Vinyl Chloride Chloroethane Methylene Chloride Trichlorofluoromethane 1,1-Dichloroethene 1,1-Dichloroethane Trans-1,2-Dichloroethene Chloroform 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethane 1,2-Dichloropropane Trans-1,3-Dichloropropene Trichloroethylene Benzene Dibromochloromethane 1,1,2-Trichloroethane Cis-1,3-Dichloropropene 2-Chloroethyl vinyl ether Bromoform 1,1,2,2-Tetrachloroethane Tetrachloroethylene Toluene Chlorobenzene Ethyl Benzene Acrylonitrile Acrolein	10 10 10 10 5 5 5 5 5 5 5 5 5 5 5 5 5 5	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	Pentene 2-Methyl-2-butene 1,3-Pentadiene 2-Methyl-2-butene Xylene		27 7 45 5

Comments _	*Tentatively	identified	and	quantitatively	estimated.



BASE/NEUTRAL COMPOUNDS

GC/MS Report

Analyst	•	W.	Dickens
riiaiyət			

Date of Analysis _

9/6/84

Client _____

Reichhold Chemicals, Inc.

Laboratory No. _____

5200H

Sample Description Water sample labeled W(8)

Compounds	MDL¹ PPB	Conc. ² PPB	Compounds	MDL ¹ PPB	Conc. ² PPB
Bis (2-chloroethyl) ether 1,3-Dichlorobenzene 1,4-Dichlorobenzene Bis (2-Chloroisopropyl) ether Hexachloroethane N-nitroso-di-n-propylamine Nitrobenzene Isophorone Bis (2-Chloroethoxy) methane 1,2,4-Trichlorobenzene Naphthalene Hexachlorobutadiene Hexachlorocylopentadiene 2-Chloronaphthalene Acenaphthylene Dimethylphthalate 2,6-Dinitrotoluene Acenaphthene 2,4-Dinitrotoluene Fluorene 4-Chlorophenyl phenyl ether Diethyl phthalate N-nitrosodiphenylamine ³ 1,2-Diphenylhydrazine ⁴	10 10 10 10 10 10 10 10 10 10 10 10 10 1	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	4-Bromophenyl phenyl ether Hexachlorobenzene Phenanthrene Anthracene Dibutyl phthalate Fluoranthene Pyrene Benzidine Butyl benzyl phthalate 2,3,7,8-Tetrachlorodibenzo-p-dioxin Benzo (a) anthracene Chrysene 3,3'-Dichlorobenzidine Bis (2-ethylhexyl) phthalate Di-n-octyl phthalate Benzo (b) fluoranthene Benzo (k) fluoranthene Benzo (a) pyrene Indeno (1,2,3-cd) pyrene Dibenzo (a,h) anthracene Benzo (g,h,i) perylene N-nitrosodimethylamine Bis (chloromethyl) ether	10 10 10 10 10 10 10 10 10 10 10 10 10 1	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL
Other Compounds* Total Saturated Hydrocarbon	in.	40	¹ MDL = Method Detection Limit ² BMDL = Below Method Detection Limit ³ Detected as Diphenylamine ⁴ Detected as Azobenzene ⁵ ND = Not Determined		

*Presence indicated, but less than the stated method detection limit. Comments

**Tentatively identified and quantitatively estimated.

CH2M ⊪HILL

Client ____

ACID COMPOUNDS

GC/MS Report

Analyst W. Dickens

Date of Analysis 9/6/84

Laboratory No. 5200H

Sample Description ___

Water sample labeled W 85

Reichhold Chemical, Inc.

-95

;		,		-
Compounds	MDL¹	Conc. ²		
Phenol 2-Chlorophenol	10	BMDL BMDL		
2-Nitrophenol 2-4-Dimethylphenol 2-4-Dichlorophenol	10 10 10	BMDL BMDL BMDL		
4-Chloro-3-methylphenol 2,4,6-Trichlorophenol 2,4-Dinitrophenol	10 10	BMDL BMDL		
4-Nitrophenol 2-Methyl-4,6-dinitrophenol	50 10 50	BMDL BMDL BMDL		
Pentachlorophenol	10	BMDL		
,				
			¹ MDL = Method Detection Limit	
			² BMDL = Below Method Detection Limit	

Comments	 <u>.</u>		-				-
1		!		 	 		-
			-				:
	 				 	٠.	



GC/MS Report

Analyst M. Price

Date of Analysis 9/7/84

Client	Reichhold	Chemicals,	Inc.

Laboratory No. 5200E

Sample Description Water sample labeled W-10S

Compounds	MDL1		
	PPB	Conc. ² PPB	
Chloromethane	10	BMDL	
Bromomethane	i	BMDL	
Vinyl Chloride	10	BMDL	
Chloroethane	10	BMDL	
Methylene Chloride	5	ND	
Trichlorofluoromethane		BMDL	i
1,1-Dichloroethene	5	BMDL	
1,1-Dichloroethane		BMDL	
Trans-1,2-Dichloroethene	5	BMDL	
Chloroform	5	BMDL	
1,2-Dichloroethane	5	BMDL	
1,1,1-Trichloroethane	5	BMDL	
Carbon Tetrachloride	5	BMDL	
Bromodichloromethane	5	BMDL	
1,2-Dichloropropane	5	BMDL	
Trans-1,3-Dichloropropene	5	BMDL	
Trichloroethylene	5	BMDL	
Benzene	5	BMDL	
Dibromochloromethane	5	BMDL	
1,1,2-Trichloroethane	5	BMDL	:
Cis-1,3-Dichloropropene	5	BMDL	
2-Chloroethyl vinyl ether	10	BMDL	
Bromoform	5	BMDL	
1,1,2,2-Tetrachloroethane	5	BMDL	
Tetrachloroethylene	5	BMDL	
Toluene	5	BMDL	
Chlorobenzene	5	BMDL	
Ethyl Benzene		BMDL	
Acrylonitrile	100	BMDL	;
Acrolein	100	BMDL	
Dichlorodifluoromethane	ND ³		
·			
,	}		
			1 - 1 - 1 - 1 - 1
			¹MDL = Method Detection Limit
			² BMDL = Below Method Detection Limit
			³ ND ¹ Not Determined
		<u></u> _	:

Comments		 	1 2
		I	



BASE/NEUTRAL COMPOUNDS

GC/MS Report

Analyst	W.	Dickens
Date of Analysis		9/5/84
====== = : , =		

Client _____

Reichhold Chemicals, Inc.

____Laboratory No. _____

Sample Description Water sample labeled W-10S

		T 1			
Compounds	MDL1	Conc.2	Compounds	MDL ¹	Conc.2
	PPB	PPB		PPB	PPB
Bis (2-chloroethyl) ether	10	BMDL	4-Bromophenyl phenyl ether	10	BMDL
1,3-Dichlorobenzene	10	BMDL	Hexachlorobenzene	10	BMDL
1,4-Dichlorobenzene	10	BMDL	Phenanthrene	10	BMDL
1,2-Dichlorobenzene	10	BMDL	Anthracene	10	BMDL
Bis (2-Chloroisopropyl) ether	10	BMDL	Dibutyl phthalate	10	BMDL
Hexachloroethane	10	BMDL	Fluoranthene	10	BMDL
N-nitroso-di-n-propylamine	10	BMDL	Pyrene	10	BMDL
Nitrobenzene	10	BMDL	Benzidine	40	BMDL
Isophorone	10	BMDL	Butyl benzyl phthalate	10	BMDL
Bis (2-Chloroethoxy) methane	10	BMDL	2,3,7,8-Tetrachlorodibenzo-p-dioxin	10	BMDL
1,2,4-Trichlorobenzene	10	BMDL	Benzo (a) anthracene	10	BMDL
Naphthalene	10	BMDL	Chrysene	10	BMDL
Hexachlorobutadiene	10	BMDL	3,3'-Dichlorobenzidine	40	BMDL
Hexachlorocylopentadiene	10	BMDL	Bis (2-ethylhexyl) phthalate	10	BMDL
2-Chloronaphthalene	10	BMDL	Di-n-octyl phthalate	10	BMDL
Acenaphthylene	10	BMDL BMDL	Benzo (b) fluoranthene	10	BMDL
Dimethylphthalate	10	BMDL	Benzo (k) fluoranthene	10	BMDL
2,6-Dinitrotoluene	10	BMDL	Benzo (a) pyrene	10	BMDL
Acenaphthene	10	BMDL	Indeno (1,2,3-cd) pyrene	10	BMDL
2,4-Dinitrotoluene Fluorene	10	BMDL	Dibenzo (a,h) anthracene	10 10	BMDL
4-Chlorophenyl phenyl ether	10	BMDL	Benzo (g,h,i) perylene N-nitrosodimethylamine	ND ⁵	DIVIDE
Diethyl phthalate	10	BMDL	Bis (chloromethyl) ether	ND ⁵	
N-nitrosodiphenylamine ³	10	BMDL	bis (Chloromethyl) ether	טא	
1,2-Diphenylhydrazine ⁴	10	BMDL	,		
1,2-Diphenyinydrazine	'		·		İ
Other Compounds*					
Total Saturated Hydrocarbor	s	40	,		
•					
1	1		:		
			¹ MDL = Method Detection Limit		
			² BMDL = Below Method Detection Limit		
			³ Detected as Diphenylamine		
			⁴ Detected as Azobenzene		
			⁵ ND = Not Determined		
	1	<u> </u>	<u> </u>	<u> </u>	1

Comments *Tentatively identified and quantitatively estimated.

Client _____

ACID COMPOUNDS

Reichhold Chemical, Inc.

GC/MS Report

Analyst	W. Dickens
Date of Analysis _	9/5/84
Laboratory No	5200E

Sample Description Water sample labeled W-10S

Compounds MDL1 Conc.2 PPB PPB Phenol 10 BMDL 2-Chlorophenol 10 BMDL 2-Nitrophenol 10 BMDL 2-4-Dimethylphenol 10 BMDL 2-4-Dichlorophenol 10 BMDL 4-Chloro-3-methylphenol BMDL 10 2,4,6-Trichlorophenol BMDL 10 2,4-Dinitrophenol 50 BMDL 4-Nitrophenol 10 BMDL 2-Methyl-4,6-dinitrophenol 50 BMDL Pentachlorophenol 10 BMDL ¹MDL = Method Detection Limit ²BMDL = Below Method Detection Limit

Comments	-			-
		1	 5.	4
		1		



GC/MS Report

Analyst	M. Price
Date of Analysis	9/6/84

Client _

Reichhold Chemicals, Inc. __Laboratory No. ____

5200A

Water sample labeled W-11S Sample Description __

	Γ	· ·	
Compounds	MDL ¹ PPB	Conc. ² PPB	
Chloromethane	10	BMDL	·
Bromomethane	10	BMDL	
Vinyl Chloride	10	BMDL	
Chloroethane	10	BMDL	
Methylene Chloride	5	ND	
Trichlorofluoromethane	5	BMDL	:
1,1-Dichloroethene	5	BMDL	
1,1-Dichloroethane	5	BMDL	
Trans-1,2-Dichloroethene	5	BMDL	
Chloroform	5	BMDL	
1,2-Dichloroethane		BMDL	
1,1,1-Trichloroethane	5 5	BMDL	
Carbon Tetrachloride	5	BMDL	
Bromodichloromethane	5	BMDL	
1,2-Dichloropropane	5	BMDL	
	5	BMDL	·
Trans-1,3-Dichloropropene Trichloroethylene	5	BMDL	
Benzene	5	8	
Dibromochloromethane	5 5	BMDL	
1,1,2-Trichloroethane	5	BMDL	
	5	BMDL	
Cis-1,3-Dichloropropene	10	BMDL	,
2-Chloroethyl vinyl ether Bromoform	5	BMDL	
1,1,2,2-Tetrachloroethane	5	BMDL	:
	5	BMDL	,
Tetrachloroethylene Toluene	5	1	
Chlorobenzene	5	6	
	5	BMDL 26	
Ethyl Benzene			
Acrylonitrile	100	BMDL	
Acrolein	100	BMDL	
Dichlorodifluoromethane	ND ³	1	
Othor Composed to			
Other Compounds*	-		
Cyclonantona			
Cyclopentene		52	¹ MDL = Method Detection Limit
			:
			² BMDL = Below Method Detection Limit
			³ ND ≠ Not Determined
	<u> </u>		

omments	*Tentatively	identified	and	quantitatively	estimated
---------	--------------	------------	-----	----------------	-----------



BASE/NEUTRAL COMPOUNDS

GC/MS Report

Analyst	W.	Dickens
Date of Analysis		9/5/84
		f.p

Client .

Reichhold Chemicals, Inc.

_Laboratory No. _

5200A

Sample Description Water sample labeled W-11S

Compounds	MDL ¹ PPB	Conc. ² PPB	Compounds	MDL ¹ PPB	Conc. ² PPB
Bis (2-chloroethyl) ether 1,3-Dichlorobenzene 1,4-Dichlorobenzene Bis (2-Chloroisopropyl) ether Hexachloroethane N-nitroso-di-n-propylamine Nitrobenzene Isophorone Bis (2-Chloroethoxy) methane 1,2,4-Trichlorobenzene Naphthalene Hexachlorobutadiene Hexachlorocylopentadiene 2-Chloronaphthalene Acenaphthylene Dimethylphthalate 2,6-Dinitrotoluene Acenaphthene 2,4-Dinitrotoluene Fluorene 4-Chlorophenyl phenyl ether Diethyl phthalate N-nitrosodiphenylamine³ 1,2-Diphenylhydrazine⁴ Other Compounds** Cyclopentylethanone Trimethyl-2-cyclopenten-1-o	10 10 10 10 10 10 10 10 10 10 10 10 10 1	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	4-Bromophenyl phenyl ether Hexachlorobenzene Phenanthrene Anthracene Dibutyl phthalate Fluoranthene Pyrene Benzidine Butyl benzyl phthalate 2,3,7,8-Tetrachlorodibenzo-p-dioxin Benzo (a) anthracene Chrysene 3,3'-Dichlorobenzidine Bis (2-ethylhexyl) phthalate Di-n-octyl phthalate Benzo (b) fluoranthene Benzo (a) pyrene Indeno (1,2,3-cd) pyrene Dibenzo (a,h) anthracene Benzo (g,h,i) perylene N-nitrosodimethylamine Bis (chloromethyl) ether 1 MDL = Method Detection Limit 2 BMDL = Below Method Detection Limit 3 Detected as Diphenylamine 4 Detected as Azobenzene 5 ND = Not Determined	10 10 10 10 10 10 10 10 10 10 10 10 10 1	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL

Comments *Presence indicated, but less than the stated method detection limit.

**Tentatively identified and quantitatively estimated.



ACID COMPOUNDS

GC/MS Report

Analyst W. Dickens

Date of Analysis 9/5/84

Client	Reichhold	Chemical	i, Inc.
	·····		

Laboratory No. 5200A

Sample Description Water sample labeled W-11S

Compounds	MDI 1	Conc.2
·	PPB	PPB
henol		BMDL
-Chlorophenol		BMDL
2-Nitrophenol		BMDL
2-4-Dimethylphenol		BMDL
2-4-Dichlorophenol		BMDL
4-Chloro-3-methylphenol	10	BMDL
2,4,6-Trichlorophenol		BMDL
2,4-Dinitrophenol	50	BMDL
4-Nitrophenol 2-Methyl-4,6-dinitrophenol	10	BMDL
entachlorophenol	50	BMDL
on addition opinion of	10	BMDL
•		
-		
•		
•		
	ļ	
	1	
•		

	-		
Comments		·	<u>-</u>
		•	
•			



GC/MS Report

Analyst H. Cole

Date of Analysis 9/11/84

Client _____ Reichhold Chemicals, Inc.

Laboratory No. _____5200P

Sample Description Water sample labeled W-12S

	·	,	
Compounds	MDL ¹ PPB	Conc. ² PPB	
Chloromethane	10	BMDL	
Bromomethane	10	BMDL	1 .
Vinyl Chloride	10	BMDL	
Chloroethane	10	BMDL	
Methylene Chloride	5	ND	
Trichlorofluoromethane	5	BMDL	
1,1-Dichloroethene		BMDL	
1,1-Dichloroethane	5	BMDL	
Trans-1,2-Dichloroethene	5	BMDL	
Chloroform	5	BMDL	
1,2-Dichloroethane	5	BMDL	
1,1,1-Trichloroethane	5	BMDL	
Carbon Tetrachloride		BMDL	
Bromodichloromethane	5 5	BMDL	
1,2-Dichloropropane		BMDL	
Trans-1,3-Dichloropropene	5 5	BMDL	
Trichloroethylene	5	BMDL	
Benzene	5	*	
Dibromochloromethane	5	BMDL	
1,1,2-Trichloroethane	5	BMDL	
Cis-1,3-Dichloropropene	5	BMDL	
2-Chloroethyl vinyl ether	10	BMDL	
Bromoform	5	BMDL	
1,1,2,2-Tetrachloroethane	5	BMDL	
Tetrachloroethylene	5	BMDL	;
Toluene	5	*	1
Chlorobenzene	5	BMDL	
Ethyl Benzene	5	*	
Acrylonitrile	100	BMDL	
Acrolein	100	BMDL	
Dichlorodifluoromethane	ND ³	DIVIDE	
Diomorodina orometra ne	IND		
			¹ MDL = Method Detection Limit
			² BMDL ≈ Below Method Detection Limit
			³ ND = Not Determined
·			

Comments .	*Presence	indicated,	but	less	than	the	stated	method	detection	limit.	
		_				i					



BASE/NEUTRAL COMPOUNDS

GC/MS Report

Analyst	W.	Dickens
Date of Analysis _		9/11/84

\sim	: 4	
G	ient	

Reichhold Chemicals, Inc.

_Laboratory No. __

5200P

Sample Description Water sample labeled W12-S

Compounds	MDL ¹ PPB	Conc. ² PPB	Compounds	MDL ¹ PPB	Conc. ² PPB
Bis (2-chloroethyl) ether 1,3-Dichlorobenzene 1,4-Dichlorobenzene Bis (2-Chloroisopropyl) ether Hexachloroethane N-nitroso-di-n-propylamine Nitrobenzene Isophorone Bis (2-Chloroethoxy) methane 1,2,4-Trichlorobenzene Naphthalene Hexachlorobutadiene Hexachlorocylopentadiene 2-Chloronaphthalene Acenaphthylene Dimethylphthalate 2,6-Dinitrotoluene Acenaphthene 2,4-Dinitrotoluene Fluorene 4-Chlorophenyl phenyl ether Diethyl phthalate N-nitrosodiphenylamine ³ 1,2-Diphenylhydrazine ⁴	10 10 10 10 10 10 10 10 10 10 10 10 10 1	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	4-Bromophenyl phenyl ether Hexachlorobenzene Phenanthrene Anthracene Dibutyl phthalate Fluoranthene Pyrene Benzidine Butyl benzyl phthalate 2,3,7,8-Tetrachlorodibenzo-p-dioxin Benzo (a) anthracene Chrysene 3,3'-Dichlorobenzidine Bis (2-ethylhexyl) phthalate Di-n-octyl phthalate Benzo (b) fluoranthene Benzo (k) fluoranthene Benzo (a) pyrene Indeno (1,2,3-cd) pyrene Dibenzo (a,h) anthracene Benzo (g,h,i) perylene N-nitrosodimethylamine Bis (chloromethyl) ether 1MDL = Method Detection Limit 2BMDL = Below Method Detection Limit 3Detected as Diphenylamine 4Detected as Azobenzene 5ND = Not Determined	10 10 10 10 10 10 10 10 10 10 10 10 10 1	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL

Comments	-		
	Ţ		
		± ± 1 = 5	

HILL

ACID COMPOUNDS

GC/MS Report

Analyst	W	. Dickens
Date of Analysis _		9/11/84

Client	Neicillio	ilu Ci	ienneai,	mc.
Ollottic				

_Laboratory No. _____5200P

Sample Description Water sample labeled W12-S

Comments	 i		**
	į		
	 	 	



GC/MS Report

Analyst		M. Price
Date of Analysis	-	9/11/84

Client	Reichhold	Chemicals,	Inc.
OHOHE	 		

Laboratory No. ____

5200K

Sample Description Water sample labeled P-1S

Compounds	MDL¹ PPB	Conc.² PPB	Other Compounds**		PPB
Chloromethane	10	BMDL	Cyclopentene		11
Bromomethane	10	BMDL	Cyclopentadiene]	6
Vinyl Chloride	10	BMDL	Xylenes	}	7
Chloroethane	10	BMDL	11,151,55		•
Methylene Chloride	5	ND			
Trichlorofluoromethane	5	BMDL			
1,1-Dichloroethene	5	BMDL	:		
1,1-Dichloroethane	5	BMDL	,		
Trans-1,2-Dichloroethene	5	BMDL	i .		
Chloroform	5	BMDL	· .		
1,2-Dichloroethane	5	BMDL	:	1	
1,1,1-Trichloroethane	5	BMDL			
Carbon Tetrachloride	5	BMDL			
Bromodichloromethane	5	BMDL			
1,2-Dichloropropane	5	BMDL	,		
Trans-1,3-Dichloropropene	5	BMDL	;		
Trichloroethylene	5	BMDL			
Benzene	5	5			
Dibromochloromethane	5	BMDL			
1,1,2-Trichloroethane	5	BMDL			
Cis-1,3-Dichloropropene	5	BMDL	1		
2-Chloroethyl vinyl ether	10	BMDL		j	
Bromoform	5	BMDL			
1,1,2,2-Tetrachloroethane	5 .	BMDL		1	
Tetrachloroethylene	5	BMDL	1		
Toluene	5	*	1		
Chlorobenzene	5	BMDL			
Ethyl Benzene	5	9	:		
Acrylonitrile	100	BMDL			
Acrolein	100	BMDL			
Dichlorodifluoromethane	ND ³				
			,		
			¹ MDL = Method Detection Limit		
			² BMDL = Below Method Detection Limit		
			³ ND ≑ Not Determined		
	1	1	<u> </u>		

Comments	*Presence	indicated,	but less	than	the	stated	method	detection	limit.
					· · · · · · · · · · · · · · · · · · ·				



BASE/NEUTRAL COMPOUNDS

GC/MS Report

Analyst	W. Dickens
Date of Analysis	9/6/84
	5200K

Client _

Reichhold Chemicals, Inc.

_Laboratory No. _

Sample Description ___

Water sample labeled P-1S

			1	y	,
Compounds	MDL ¹ PPB	Conc. ² PPB	Compounds	MDL ¹ PPB	Conc. ² PPB
Bis (2-chloroethyl) ether 1,3-Dichlorobenzene 1,4-Dichlorobenzene Bis (2-Chloroisopropyl) ether Hexachloroethane N-nitroso-di-n-propylamine Nitrobenzene Isophorone Bis (2-Chloroethoxy) methane 1,2,4-Trichlorobenzene Naphthalene Hexachlorobutadiene Hexachlorobutadiene Hexachlorocylopentadiene 2-Chloronaphthalene Acenaphthylene Dimethylphthalate 2,6-Dinitrotoluene Acenaphthene 2,4-Dinitrotoluene Fluorene 4-Chlorophenyl phenyl ether Diethyl phthalate N-nitrosodiphenylamine ³ 1,2-Diphenylhydrazine ⁴ Other Compounds** 2,3,4-Trimethyl-2-cyclopente 1-one Hexadecanoic Acid Hexadecenoic Acid Total Saturated Hydrocarbor		BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	4-Bromophenyl phenyl ether Hexachlorobenzene Phenanthrene Anthracene Dibutyl phthalate Fluoranthene Pyrene Benzidine Butyl benzyl phthalate 2,3,7,8-Tetrachlorodibenzo-p-dioxin Benzo (a) anthracene Chrysene 3,3'-Dichlorobenzidine Bis (2-ethylhexyl) phthalate Di-n-octyl phthalate Benzo (b) fluoranthene Benzo (k) fluoranthene Benzo (a) pyrene Indeno (1,2,3-cd) pyrene Dibenzo (a,h) anthracene Benzo (g,h,i) perylene N-nitrosodimethylamine Bis (chloromethyl) ether 1 MDL = Method Detection Limit 2 BMDL = Below Method Detection Limit 3 Detected as Diphenylamine 4 Detected as Azobenzene 5 ND = Not Determined	10 10 10 10 10 10 10 10 10 10 10 10 10 ND ⁵ ND ⁵	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL

*Presence indicated, but less than the stated method detection limit. Comments

**Tentatively identified and quantitatively estimated.

CH2M ##HILL

Client_

ACID COMPOUNDS

GC/MS Report

Analyst	W. Dickens
Date of Analysis _	9/6/84
_Laboratory No	5200K

Sample Description Water sample labeled P-1S

Reichhold Chemical, Inc.

Compounds	MDL ¹	Conc. ²	
Phenol 2-Chlorophenol 2-Nitrophenol 2-4-Dimethylphenol 2-4-Dichlorophenol 4-Chloro-3-methylphenol 2,4,6-Trichlorophenol 2,4-Dinitrophenol 4-Nitrophenol 2-Methyl-4,6-dinitrophenol Pentachlorophenol	10 10 10 10 10 10 50 10	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	
	S		Althorna Control of the Control of t
			¹ MDL = Method Detection Limit ² BMDL = Below Method Detection Limit

_	±5.	-		-	
Comments _			 		
					÷
-	-	-			i jan



GC/MS Report

Analyst M. Price

Date of Analysis 9/11/84

Client _____ Reichhold Chemicals, Inc.

Laboratory No. 5200L

Sample Description Water sample labeled P-2S

		·			
Compounds	MDL¹ PPB	Conc.² PPB	Other Compounds**		PPB
Chloromethane	50	BMDL	Cyclopentene		200
Bromomethane	50	BMDL	2-Pentene		92
Vinyl Chloride	50	BMDL	2-Methyl-2-pentene		48
Chloroethane	50	BMDL	Xylenes	13	3800
Methylene Chloride	25	ND	.,		,000
Trichlorofluoromethane	25	BMDL	•		
1,1-Dichloroethene	25	BMDL			
1,1-Dichloroethane	25	BMDL	:		
Trans-1,2-Dichloroethene	25	95			
Chloroform	25	BMDL			
1,2-Dichloroethane	25	BMDL			
1,1,1-Trichloroethane	25	BMDL			
Carbon Tetrachloride	25	BMDL	•		
Bromodichloromethane	25	BMDL			
1,2-Dichloropropane	25	BMDL			
Trans-1,3-Dichloropropene	25	BMDL	,		
Trichloroethylene	25	*	;		
Benzene	25	230	·		
Dibromochloromethane	25	BMDL	,	ļ	
1,1,2-Trichloroethane	25	BMDL		į	
Cis-1,3-Dichloropropene	25	BMDL			
2-Chloroethyl vinyl ether	50	BMDL		1	
Bromoform *	25	BMDL		- [
d d O O Takus alala us alla au a	25	BMDL		ļ	
1,1,2,2-Tetrachloroethane	25	* PINIDE	→ 1 → ·	- 1	
Tetrachloroethylene Toluene	25	350			
			3	ļ	
Chlorobenzene	25	BMDL			
Ethyl Benzene	25	550			
Acrylonitrile	500	BMDL		1	
Acrolein	500	BMDL			
Dichlorodifluoromethane	ND ³			1	
	1		,	1	
			184DI — Mashard Davastica Limit		
		-	MDL = Method Detection Limit		
			² BMDL = Below Method Detection Limit		
			³ ND = Not Determined	1	
		l _			

Comments *Presence indicated, but less than the stated method detection limit.

**Tentatively identified and quantitatively estimated.



Client _

BASE/NEUTRAL COMPOUNDS

Reichhold Chemicals, Inc.

GC/MS Report

Analyst	W.	Dickens

Date of Analysis ___

Laboratory No. _____

52001

Sample Description Water sample labeled P-2S

Bis (2-chloroethyl) ether 200 BMDL 1,3-Dichlorobenzene 200 BMDL 200			i i			
1,3-Dichlorobenzene	Compounds			Compounds		
⁵ ND = Not Determined	1,3-Dichlorobenzene 1,4-Dichlorobenzene Bis (2-Chloroisopropyl) ether Hexachloroethane N-nitroso-di-n-propylamine Nitrobenzene Isophorone Bis (2-Chloroethoxy) methane 1,2,4-Trichlorobenzene Naphthalene Hexachlorobutadiene Hexachlorocylopentadiene 2-Chloronaphthalene Acenaphthylene Dimethylphthalate 2,6-Dinitrotoluene Acenaphthene 2,4-Dinitrotoluene Fluorene 4-Chlorophenyl phenyl ether Diethyl phthalate N-nitrosodiphenylamine ³ 1,2-Diphenylhydrazine ⁴ Other Compounds* C ₃ -Benzenes Aniline 2,3,4-Trimethyl-2-cyclopente 1-one 3-Methyl aniline Diphenyl ether	200 200 200 200 200 200 200 200 200 200	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	Hexachlorobenzene Phenanthrene Anthracene Dibutyl phthalate Fluoranthene Pyrene Benzidine Butyl benzyl phthalate 2,3,7,8-Tetrachlorodibenzo-p-dioxin Benzo (a) anthracene Chrysene 3,3'-Dichlorobenzidine Bis (2-ethylhexyl) phthalate Di-n-octyl phthalate Benzo (b) fluoranthene Benzo (a) pyrene Indeno (1,2,3-cd) pyrene Dibenzo (a,h) anthracene Benzo (g,h,i) perylene N-nitrosodimethylamine Bis (chloromethyl) ether 1 MDL = Method Detection Limit 2 BMDL = Below Method Detection Limit 3 Detected as Diphenylamine 4 Detected as Azobenzene	200 200 200 200 200 200 200 200 200 200	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL

Comments *Tentatively identified and quantitatively estimated.



Client __

ACID COMPOUNDS

GC/MS Report

Analyst	W. Dickens
Date of Analysis	9/10/84
_Laboratory No	5200L

Sample Description ___

Water sample labeled P-2S

Reichhold Chemical, Inc.

Compounds	MDL ¹	Conc. ²	
Phenol 2-Chlorophenol 2-Nitrophenol 2-4-Dimethylphenol 2-4-Dichlorophenol 4-Chloro-3-methylphenol 2,4,6-Trichlorophenol 2,4-Dinitrophenol 4-Nitrophenol 2-Methyl-4,6-dinitrophenol Pentachlorophenol	200 200 200 200 200 200 200 200	BMDL BMDL BMDL BMDL BMDL BMDL BMDL BMDL	
· #			J. Johnson
			¹ MDL = Method Detection Limit

Comments				
	·	.=	:-	



January 21, 1985

MG17621.CO.06

Mr. Ron Joiner
U. S. EPA, Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30308

Dear Mr. Joiner:

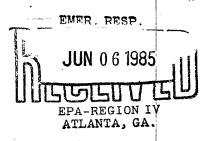
I am transmitting copies of our reports concerning ground-water conditions at the Reichhold Chemical facility in Gulfport, Mississippi. This is at the request of Mr. Bob Clarke, RCI, who had received the original request from Mr. Chuck Estes at the Mississippi DNR.

Sincerely,

Robert H. Aradson

R. G. Goodson, CPG Hydrogeologist

jh/BG/053 cc: Bob Clarke, RCI



PRELIMINARY DRAFT

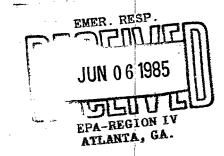
FEASIBILITY ASSESSMENT AND PROPOSED ACTIONS FOR MITIGATION OF GROUNDWATER CONTAMINATION

REICHHOLD CHEMICALS, INC. GULFPORT, MISSISSIPPI

CH2M HILL 807 South McDonough Street Montgomery, Alabama 36104

MG17621.CO

January, 1985



BRIEF DESCRIPTION OF CURRENT STATUS

RCI authorized CH2M HILL, INC. to investigate groundwater contamination at its Gulfport, Mississippi, production facility. This study was initiated by RCI following observation of contaminated groundwater seepage discharging along the embankment of a large, dredged canal (Industrial Seaway) adjacent to the plant. Two reports prepared by CH2M HILL, dated May and October, 1984 summarized results of geophysical surveys and groundwater monitoring investigations, including identifying the source(s) and extent of groundwater contamination.

The purpose of this report is to identify and propose effective actions to reduce or eliminate migration of contaminants to potential receptors.

IDENTIFICATION OF SOURCES

Results of investigations, utilizing geophysical remote sensing and characterization of soils and groundwater, have indicated two sources contributing to contamination of shallow groundwater. The primary source is the filter cake landfill located along the eastern property boundary. A secondary lesser source has been tentatively identified in the vicinity of the tank farm.

The landfill, in use for about 15-20 years, receives production process-generated filter cake consisting primarily of solid ammonium-aluminum chloride complex and organic solvents. According to plant personnel, waste materials have been placed solely above ground in a slight natural land surface depression. Recent test excavations in the vicinity of the planned ammonia treatment ponds revealed 4-6 feet of waste overlying native soils. Organics found in a landfill solids sampled in November, 1983 include: benzene, toluene, ethyl benzene, xylenes, napthalene, and dicyclopentadiene. Concentrations ranged from 6 to 230 ppm. A sample of fresh filter cake contained the same compounds, minus xylenes and napthalene, in concentrations from 56 to 926 ppm.

Release of chemicals to the groundwater has also occurred in the vicinity of the tank farm. The indicated source has not been identified, but appears to be much smaller magnitude than the landfill. The contaminated groundwater plume from this indicated source merges with the plume from the landfill prior to discharging along the embankment of the Industrial Seaway.

RECEPTORS AND PATHWAYS

Receptor as used in this report represents any receiving body at which point contaminated groundwater may contact humans. Groundwater contamination is generally limited to the shallow free water table (5 to 15 ft. below land surface). This groundwater is not used as a source of supply in the vicinity of RCI. Therefore, potential receptors are those bodies receiving discharge from the shallow water table near the facility. Primary flow in this shallow groundwater zone is horizontal (generally to the south), and discharges along the Industrial Seaway at the outcropping of an underlying clay layer. The Industrial Seaway is consequently the principle receptor of contaminated groundwater, as evidenced by leachate seeps occurring along the embankment.

A slight downward flow gradient exists between the shallow free water table and deeper aquifers providing a low driving force for potential vertical transport of contaminants through low-permeability clay sediments and ultimately into deeper aquifers used for potable water supply. The top of the uppermost aquifer used for potable water supply occurs about 200 feet below land surface, according to limited data from USGS in Jackson. This uppermost usable aquifer supplies small commercial and residential wells, the nearest of which is within 2000 feet of the site. Higher capacity wells used for public and industrial supply are located within 4000 feet of the facility, and tap a multi-aquifer system from 500-1000 ft. deep.

OBJECTIVES OF THE PROPOSED ACTION

Site-specific objectives for proposed action(s) are:

- 1. Reduce or eliminate release of contaminated groundwater seepage into the adjacent Industrial Seaway.
- 2. Reduce the potential for vertical migration of contaminants to deeper, useable aquifers.
- 3. Control, reduce, or eliminate potential release of contaminants via surface runoff from the landfill.

1. A new lined storage/surge pond and ammonia removal facility (lined stripping pond) are under construction to provide pretreatment of landfill runoff, currently collected in an adjacent shallow impoundment. After pretreatment for ammonia removal, this stream is routed to the existing biological wastewater treatment system.

It is assumed that this new pretreatment system will remain in operation and be available for treatment of runoff and/or recovered groundwater.

2. A new filter cake drying/solvent recovery system is planned. Also, it is anticipated that disposal of the resulting dried filter cake will be to a municipal or other approved landfill, or reclaimed for agricultural use. For the purposes of this report, implementation of the cake drying/solvent recovery system will occur by the end of September, 1985— and that disposal of cake solids to the existing landfill will cease at that time. This schedule assumption depends greatly on vendor delivery commitments, construction sequencing, and successful startup.

ALTERNATIVE DEVELOPMENT AND SCREENING

SCREENING OF APPLICABLE TECHNOLOGIES

A wide range of technical and site-specific input was used to identify applicable technologies, and to support development and evaluation of alternative actions for the RCI plant site. Listings of technologies were reviewed and assessed for site-specific application and for anticipated degree of accomplishment of stated objectives. This procedure was performed to eliminate those technologies which are not feasible, applicable, or reliable--resulting in a list of technologies that are technically applicable for specific site conditions. Review of alternate technologies also serves to classify competing and complementary relationships.

DEVELOPMENT AND EVALUATION OF ALTERNATIVES

Alternative technologies retained from initial applicability screening were grouped in various combinations for assembly of more defined, complete action alternatives. These alternatives were then subjected to further screening and evaluation according to the following criteria:

- o Level of development and inherent limitations of the technologies utilized.
- o Short term and long term environmental effects
- o Constructability and time requirements
- o Anticipated cost impacts
- o Availability and reliability
- o Degree of accomplishing stated objectives

SUMMARY DESCRIPTION OF PROPOSED ACTIONS

The following actions, with major elements described more fully below, are proposed for implementation:

- 1. Install a linear trench along the Industrial Seaway to collect shallow groundwater, downgradient of the landfill and tank farm (see enclosed drawing), intercepting seepage currently being released along the embankment.
- 2. Regrade the surface of the existing landfill to prevent runon and collect runoff, with treatment of collected runoff in existing and planned treatment facilities.
- Allow percolation through, and leachate generation from, the landfill to continue by not providing a cap/cover system. In this manner, contained waste constituents will be reduced over time, reducing the long-term potential for release to deeper usable aquifers. Leachate generated will be collected through the intercept trench system.
 - 4. Actively consider acceleration of waste constituents release, such as re-application of recycled, treated (partially or completely) groundwater and/or runoff to the landfill.
 - 5. Provide for long-term treatment of runoff and of groundwater collected from the interceptor trench, using a combination of existing and upgraded/additional facilities as appropriate, to allow discharge through the existing NPDES system.

DOWNGRADIENT INTERCEPT TRENCH

Interception of shallow groundwater can be accomplished by installing a subsurface trench drain along the Industrial Seaway downgradient of the landfill and tank farm (see enclosed drawing). Multiple sumps and pumping stations would be included to transfer collected groundwater to subsequent treatment facilities.

This intercept drain would be a relatively standard design concept, including a perforated pipe in a gravel-filled trench. A geotextile liner would be installed prior to covering the trench, to prevent clogging. The design depth of the trench, pipe elevation, and slope must provide for collection in multiple pump sumps. Pumping control levels and clay strata depth penetration of the trench would provide a resulting intercept of groundwater flow.

Initial estimates of collected groundwater flow are an average of 20 gpm, and a maximum of 40 gpm. Since the length of time groundwater extraction and treatment will be required cannot be accurately determined, perpetual operation and maintenance should be assumed. The actual period of time required will depend on many factors, including the effectiveness of methods to accelerate constituent release. After an initial operating period, better indications and projections may be available.

Water levels in the shallow groundwater zone will be drawn down within about 50-ft. of the trench. Beyond this point groundwater levels will not be significantly affected. Groundwater flow in the shallow zone is essentially totally horizontal due primarily to the much greater horizontal permeability of the sand (approx. 10⁻³ cm/sec) compared to the vertical permeability of the underlying clay stratum

(approx. 10⁻⁷ cm/sec), or a ratio of four orders of magnitude. In addition, the vertical hydraulic gradient is very slight. This preferred flow direction combined with active reduction of concentrations in both the waste source and surrounding groundwater result in minimal long-term potential release to deeper usable aquifers.

GROUNDWATER TREATMENT

Extraction and treatment of groundwater will be a key element of the proposed actions. For the purposes of this report, the following bases for groundwater treatment were used:

- 1. The highest observed constituent concentrations observed in any well during either of two sampling excursions were compiled to represent assumed groundwater character. Generally, the majority of the highest concentrations occurred in monitoring wells 6S, 5S, and 3S. Since groundwater extraction will likely be conducted downgradient (south) of the landfill, combinations of these high concentrations (or similar levels) are likely to be experienced.
- 2. The assumed groundwater character, compiled in the manner described above, contains about:

	mg/1 (unless noted)
Organics - volatiles	165
- acids	<1
- base/neutra	ls 35
Theo. OD	600-700
TOĆ	225
NH ₃ -N	2640
-	A CARL SECTION OF THE

Chlorides
Sulfates
Conductivity
pH

8180 >80 >20,000 umhos/cm

4-5 Std. Units

- 3. Complete treatment with entirely separate discharge from the existing wastewater treatment plant (WWTP) was not considered viable, since a separate NPDES permit would likely be required, as would duplication of at least part of the existing WWTP.
- 4. Similarly, partial or complete treatment for in-plant reuse was not considered viable due to the relatively high concentrations of chloride as well as other contaminants. The potential for reuse, requiring low water quality, such as in a scrubber system, should be assessed on a screening basis.
- 5. Providing selected pretreatment of contaminated groundwater prior to discharge to the existing WWTP was considered the most viable option for groundwater treatment. A detailed evaluation of the existing WWTP, determination of any modifications to the NPDES permit, and refinement of the flow and character of groundwater anticipated for the selected action alternative will be necessary for selection of the combination of pretreatment and upgraded facilities to be implemented.
- An initial pretreatment step of gravity separation appears worthwhile, evidenced by the separation of free oil from seepage along the canal. Combining gravity separation with equalization in a baffled tank of 2-3 hours retention has been included.

7. Air stripping appears to be the most viable approach for removal of volatile organics and ammonia. Stripping of volatiles alone could be conducted at pH 4-5 (no adjustment), leaving the ammonia requiring subsequent pH adjustment and stripping in existing or new facilities. Alternatively, pH adjustment prior to stripping may provide for removal of both volatile organics and ammonia in a single system. Further, the waste and/or air steam could be heated (i.e., steam injection) to improve stripping kinetics.

For the purposes of this report, pH adjustment and combined stripping for 95% of both ammonia and volatiles in existing or new facilities was assumed.

Refinement of the additional facilities or modifications to the existing WWTP needed will require further detailed evaluation of the existing WWTP, as mentioned in item 5 above.

IMPLEMENTATION REQUIREMENTS AND RECOMMENDATIONS

To expedite effective implementation of the proposed action, the following activities are required or recommended:

- 1. Confirm the acceptance of the concepts of implementation of the proposed actions with MDNR and EPA, including impacts of the recent draft solid waste regulations.
- 2. Identify and resolve, in coordination with MDNR, any permit revisions required to allow RCI to treat and discharge extracted groundwater, including release of volatile organics from air stripping.
- 3. Conduct a detailed assessment of the existing WWTP, including:
 - o Confirm criteria required for treatment
 - o Evaluate compatibility of extracted groundwater with existing waste streams and with treatment process utilized
 - o Project impacts of introducing groundwater to the existing WWTP (may require treatability testing)
 - O Collect additional samples from wells 2S, 5S, and 6S to supplement and extend groundwater monitoring data and to provide bulk samples for treatability testing, if necessary.

- Assess the adequacy of existing facilities -- or define additional pretreatment or upgrading needed -- to provide for treatment of extracted groundwater.
- 4. Complete detailed design, equipment procurement, construction, and startup of any additional pretreatment or existing WWTP upgrade facilities required. These facilities must be operational, to provide for treatment and disposal of extracted groundwater, prior to operation of the proposed intercept trench/pumping system, which must be considered in implementation schedules.
- 5. Conduct groundwater elevation surveys at least monthly (by plant personnel) to provide information on fluctuations of groundwater levels, and indications of variations in hydraulic gradients.
- 6. Conduct survey (possibly in conjunction with preparation of aerial maps) and collect additional data and information to refine construction methods for the proposed intercept trench and groundwater recovery system. Additional permeability data on transmissive strata is needed to improve estimates of anticipated extracted groundwater flow rates.
- 7. Collect samples with depth at grid locations in the existing landfill to identify the horizontal and vertical extent of landfill material. Characterize all samples on a screening basis, and selected samples in detail, to identify waste constituents and extremes. Subject selected samples to analyses of leachate aliquots over time to provide a better

understanding of long-term behavior and constituent release (including ammonia).

8. Analyze separated oil from groundwater seepage for incineration feasibility parameters (Btu, moisture, ash, etc.), and assess alternate disposal options—such as drum collection and shipment to a commercial incineration facility.

jd/GAM3/020

REFERENCES

- 1. CH2M HILL, Groundwater Monitoring Network and Preliminary Contamination Assessment; Reichhold Chemicals, Inc.; Gulfport, Mississippi, May, 1984.
- 2. CH2M HILL, Contamination Assessment of the Shallow Aquifer; Reichhold Chemicals, Inc.; Gulfport, Mississippi; October, 1984.
- 3. Mississippi Department of Natural Resources,
 Nonhazardous Waste Regulations (Draft Final); Regulation
 No. PC/S-1; September, 1984.
- 4. U.S. EPA, "Handbook for Remedial Action at Waste Disposal Sites," EPA 625/6-82-006, June, 1982.
- 5. U.S. EPA, "Preliminary Draft Interim Guidance on the Preparation of Feasibility Studies," September, 1983.
- 6. Robert Snow Means Co., "Building Construction Cost Data 1983,", Kingston, Mass.
- 7. McGraw-Hill Information Systems, <u>Dodge Guide</u>, New York, New York, 1983.
- 8. Office of Technology Assessment, "Technologies and Management Strategies for Hazardous Waste Control," March, 1983, NTIS PB83-189241.
- 9. Malone, Philip G. and Cullinane, M. John, "Draft Technical Handbook for Stabilization/Solidification Alternatives for Remedial Action at Uncontrolled Hazardous Waste Sites," USAE Waterways Experiment Station and U.S. EPA, Interagency Agreement No. AD-96-F-2-A145.
- 10. U.S. EPA, "Guide to the Disposal of Chemically Stabilized and Solidified Waste," SW-872, September, 1980.
- 11. U.S. EPA, "Survey of Solidification/Stabilization Technology for Hazardous Industrial Wastes," EPA-600/2-79-056, July, 1979.
- 12. Monsanto Research, "Engineering Handbook for Hazardous Waste Incineration," Prepared for U.S. EPA, NTIS PB 81-248163, September, 1981.
- 13. Sax, N.I., <u>Dangerous Properties of Industrial Materials</u>, Van Nostrand Reinhold Co., New York, 1979.

- 14. Sittig, Marshall, <u>Handbook of Toxic and Hazardous</u>
 <u>Chemicals</u>, Noyes Publications, Park Ridge, New Jersey, 1981.
- 15. National Fire Protection Association, <u>Fire Protection</u>
 Guide on Hazardous Materials, NFPA, Boston, Mass., 1978.
- 16. Verschueren, K., <u>Handbook of Environmental Data on Organic Chemicals</u>, Van Nostrand Reinhold Co., New York, 1979.

jd/GAM3/020

Table A-1. Summary of Identification of Applicable Technologies - Landfill Wastes - Reichhold - Gulfport

TECHNOLOGY	COMMENTS/ADVANTAGES/DISADVANTAGES	STATUS
CONTAINMENT		
Vertical Barriers		
- Slurry Walls	Soil- or cement-bentonite, for placement upgradient, downgradient, or partial/total circumferential Compatibility must be considered	Retained
- Vibrating Beam	Not extensively demonstrated; higher degree of uncertainty Specialty methods required Compatibility with wastes uncertain	Rejected
- Grout Curtain	Not applicable in heterogenous conditions, or high permeability soils Uncertain degree of integrity after placement Difficult to implement, and compatibility uncertain	Rejected
- Steel Sheet Pile	Higher leakage rate than slurry walls (through interlocks) Salt levels increase rate of corrosion, reducing effective life (chlorides) Little or no cost advantage unless temporary installation with salvage	Rejected
Bottom Sealing		
- Block Displacement	Not applicable to heterogenous conditions, or with potentially ignitable wastes (involves use of explosives)	Rejected
- Grout Injection	Not applicable to heterogenous conditions or with tight silts and clays Compatibility with wastes and seal integrity uncertain (Normally applicable only to seal local fracturing in bedrock)	Rejected
Capping		
- Clay	Normally implemented in conjunction with grading, runoff diversion/ collection, and revegetation Gas collection/control measures may be needed for volatile organics Requires long term maintenance to retain effectiveness Subject to cracking due to moisture variations	Retained

Table A-1 (Cont'd). Summary of Identification of Applicable Technologies - Landfill Wastes - Reichhold - Gulfport

TECHNOLOGY	COMMENTS/ADVANTAGES/DISADVANTAGES	STATUS
- Synthetic Membranes	Rejected	
- Asphalt	Subject to cracking	Rejected
- Concrete	Subject to cracking and exposure to organics; higher relative cost	Rejected
- Multi-layered Systems	May be cost prohibitive; some elements may be required for gas control	Rejected
- Chemical Sealant	Special methods required; subject to failure on settlement of freeze/	Rejected
IN-SITU TREATMENT	; **	
Physical	Not needed to improve handling properties in this case	
- Vitrification	Not applicable to organics; very high relative cost	Rejected
- Solidification	In-situ fixation of organics not demonstrated	Rejected
- Freezing	High relative cost	Rejected
- Dewatering	May use to isolate from contact with groundwater - see groundwater collection in Table A-2	Rejected
- Solvent Flush (other than water)	Uncertain reaction products and solvent residual problems Require extensive testing, anticipated high cost	Rejected
Chemical	Uncertain reaction products and unknown waste constituents Require testing; anticipated relatively high cost Uncertain distribution and contact of additive chemicals in heterogenous conditions	
- Hydrolysis	Not applicable (decomposition or alteration on reactions with water)	Rejected

Table A-1 (Cont'd). Summary of Identification of Applicable Technologies - Landfill Wastes - Reichhold - Gulfport

TECHNOLOGY	COMMENTS/ADVANTAGES/DISADVANTAGES	STATUS
- Oxidation	Potential formation of reaction products of increased toxicity; high cost	Rejected
- Reduction	Not needed	Rejected
- Neutralization	Not needed to achieve neutral pH or immobilize metals	Rejected
- Polymerization	Not demonstrated; high cost; uncertain reaction products	Rejected
- Chemical Dechlorination	Not needed; fraction of chlorinated organics present is low	Rejected
Biological	Requires aqueous phase; not demonstrated in-situ; high oxygen demand (organics and ammonia); potentially ammonia and chlorides inhibition	Rejected
XCAVATION	Traditional methods, using rubber-tired equipment, appear feasible	Retained
	Some construction dewatering may be needed	
FFSITE DISPOSAL	Offsite landfill technically appears feasible Haul and dispose cost relatively very high Eliminates source from plant site Some risk during transport and long term liability offsite	Retained
	uncertain	
ONSITE DISPOSAL (New)	Limited land available Probably require treatment Probably require construction of new facility per MDNR solid waste regulations	Rejected
POST-EXCAVATION TREATMENT		
High Temperature Incineration	Extremely expensive, and high volume of residual Kiln, hearth, or fluid wall probably only applicable technology Destruction of organics near complete	Rejected
	Potential ash fusion/eutectic formation (salts) high	•
	Generates air and water emissions	and the second s

Table A-1 (Cont'd). Summary of Identification of Applicable Technologies - Landfill Wastes - Reichhold - Gulfport

TECHNOLOGY	COMMENTS/ADVANTAGES/DISADVANTAGES	STATUS
Low-Med. Temp. Treatment	Volatilization of organics-eliminates or greatly reduces source of organics to groundwater	Rejected
	Generates air emission containing bulk of organics	•
	May allow recovery of nitrogen-rich residual	
	Probably only economically feasible if residual has market value or otherwise readily disposed	

jd/GAM3/021

Table A-2. Summary of Identification of Applicable Technologies - Groundwater - Reichhold - Gulfport

TECHNOLOGY	COMMENTS/ADVANTAGES/DISADVANTAGES	STATUS
CONTAINMENT	Technologies similar to those for containment of landfill wastes (see	
	Table A-1), except much larger area involved	
	For groundwater containment, only slurry walls retainedall others	
	rejected	
N-SITU TREATMENT		
Biological	High oxygen demand (organics and ammonia)	Rejected
	Potential ammonia and chlorides inhibition	
	Uncertain potential groundwater constituents and biodegradability	
	Uncertain distribution and contact in heterogenous conditions	
	Require extensive testinguncertain cost and likely high escalation potential	
		, n
Chemical	Technologies similar to those for in-situ treatment of landfill wastes (see Table A-1), and all rejected	Rejected
Permeable Beds	Uncertain potential constituents and applicability of bed media	Rejected
	Bed media would require repeated replacement to provide long term control	
	Uncertain/unpredictable variations in treatment efficiency, and media	
	consumptioncombined with relatively high cost and difficulty to replace media	the stronger and substantial control of the second substantial second substantial second seco
	Less applicable to higher concentrations	
OLLECTION		•
Shallow Extraction W	ells Traditional wellpoint (or ejector) wells appear feasible for shallow groundwater extraction	Retained
	Collected groundwater requires treatment and disposal	
Deep Extraction Well	Does not appear necessary; cost high; pumping rate and duration uncertain Potentially increase downward gradient and migration	Rejected
Subsurface Drains	For shallow groundwater intercept and collection	Retained
	French and/or pipe drains appear suitable	
	Collected groundwater requires treatment and disposal	

Table A-2 (Cont'd). Summary of Identification of Applicable Technologies - Groundwater - Reichhold - Gulfport

TECHNOLOGY	COMMENTS/ADVANTAGES/DISADVANTAGES	STATUS
DISPOSAL		
Reuse	Potential for direct reuse, or reuse after some level of treatment, will require assessment in regard to production facility water volume and quality requirements Probably only low water quality needs should be considered, due to chlorides and other constituents Eliminates or reduces treatment requirements and costs	Rejected (pending assessment)
Offsite	High cost for offsite transport and commercial or private disposal	Rejected
Direct Discharge	Prohibited due to levels of organics and ammonia, unless treated Treatment to levels acceptable for separate NPDES discharge would at least partially duplicate the existing treatment system Anticipated cost high, particularly considering potential new NPDES permit process	Rejected
Existing WWTP	Lower potential for new permit process, though some revisions may be needed Detailed evaluation of existing WWTP neededin combination with	Retained
	refinement of the selected action alternativeto determine potential interferences, pretreatment requirements, modifications to the existing WWTP, and discharge impacts Provides apparent most viable option for treatment Utilizes existing facilities to highest degree, including monitoring	4
EXTRACTED GROUNDWATER TREATM	ENT	
Physical/Chemical		
- Gravity Oil Separation	Appears appropriate, evidenced by separation of free oil from canal seepage	Retained
- Equalization	Desirable to modulate variations in character and flow	Retained

Table A-2 (Cont'd). Summary of Identification of Applicable Technologies - Groundwater - Reichhold - Gulfport

TECHNOLOGY	COMMENTS/ADVANTAGES/DISADVANTAGES	
~ Dissolved Atm 71		STATUS
- Dissolved Air Flotation	Applicability uncertainno apparent need (applicable to free and some emulsified oil/grease, and solids)	Rejected
- Precipitation	Metals or total suspended solids removal not apparently needed	Rejected
- pH Adjustment	Not required for metals, flocculation, or acidity May be appropriate for ammonia removal (stripping)	Retained
- Air Stripping	Applicable for ammonia and volatile organics (possibly combined treatment unit) Enhanced by increased temperature (steam injection/heat exchange) Ammonia removal enhanced by increased pH Fate of off-gas must be assessed (direct release, boiler feed air, treatment, etc), and may affect process selection	Retained
- Steam Stripping	Applicable for ammonia and volatile organics (possibly combined treatment unit) Similar other considerations as for air stripping Dependent on steam availability and fate of off-gas	Rejected (pending stripping evaluation)
- Ion Exchange	Not applicable except for selected cations and anions (not needed) Not applicable except for ammonia (clinoptilolite)very expensive	Rejected
- Reverse Osmosis	Not applicable except for dissolved salts and low MW organics (not needed)	Rejected .
- Chemical Oxidation	High oxidant dosages required for organics and ammoniahigh cost Uncertain end productsformation of toxic compounds	Rejected
- Wet Air Oxidation	Not effective for low strength organics Only partial destruction accomplished	Rejected
- Reduction	Generally not applicable to organics	Rejected

Table A-2 (Cont'd). Summary of Identification of Applicable Technologies - Groundwater - Reichhold - Gulfport

TECHNOLOGY	COMMENTS/ADVANTAGES/DISADVANTAGES	STATUS
- Liquid/Liquid Extraction	Not applicable to dilute streams with numerous componentshigh cost	Rejected
- Chemical Dechlorination	Not applicable except for chlorinated organics - a low fraction in this case	Rejected
- Granular Activated Carbon	Cost relatively high May require filtration as pretreatment to remove suspended solids May be required to achieve low residuals of acid and base neutral organics	Retained
- Filtration	May be required as pretreatment for carbon adsorption	Retained
Biological		
- Aerated Stabilization/ Settling	Existing WWIPmay require upgrading to Activated Sludge or powdered Activated Carbon (PAC) with Activated Sludge Requires evaluation of organic loading, sludge age, solids handling, oxygen requirements, hydraulic capacity, and effluent impacts	Retained
- Activated Sludge	Upgrade existing WWTP to provide sludge recycle and higher biomass Improved removals of organics, particularly acids and base neutrals Improved shock resistance	Retained
- Powdered Activated Carbon/	Requires increased operator attention, higher energy cost likely Further improves shock resistance, organics removal, and sludge control	Retained
Activated Sludge	Higher energy costs (denser biomass) and abrasion resistance required Some special additional equipment	verginen
- Other Methods	Not appear compatible with WWTP upgrade (Trickling filter, RBC, FBC, etc)	Rejected
jd/GAM3/021		



MISSISSIPPI DEPARTMENT OF NATURAL RESOURCES

Bureau of Pollution Control P. O. Box 10385 Jackson, Mississippi 39209 (601) 961-5171



May 17, 1985

Mr. Al Smith
U.S. Environmental Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, GA 30365

Dear Mr. Smith:

JUN 0 6 1985

EPA-REGION IV
ATLANTA, GA.

Enclosed is a copy of a groundwater contamination assessment and remedial action proposal for the Reichhold Chemical Plant in Gulfport, Mississippi. Please review the documents as to the effectiveness of the proposal to accomplish an initial remedial action for the site.

We must receive your comments and recommendations by June 20, 1985. Should you have any questions, please contact Chuck Estes of my staff.

Sincerely,

U Jack McMillan, Director

Division of Solid Waste Management

JMM: vgr

Enclosure



MISSISSIPPI DEPARTMENT OF NATURAL RESOURCES

Bureau of Pollution Control P. O. Box 10385 Jackson, Mississippi 39209 (601) 961-5171



and the second s

Hr. Bobby Hammond Reichhold Chemicals, Inc. P. 0. Box 6548 Gulfport, Mississippi 39506-6548

Dear Mr. Hammond:

Our office has received comments from EPA and completed our own review of the groundwater assessment and proposed remodial action plan for the Gulfport plant.

A summation of the comments and responses are as follows:

- The reports address only the groundwater problem on-site, they do not address related issues such as: potential receptors (no well Inventory); impacts on surface waters; impacts on either terrestrial or equatic ecology; estimated volume of conteminated sediments.
- At least one deep monitoring well in the lower confined squifer has detected low levels of contamination. A continued assessment of the lower confined aquifer must be made to address possible impacts to potential drinking water sources.
- The proposed interceptor trench on the south side of the plant appears feasible. Detailed design and construction plans should be developed
- Air and modified MPDF3 permits appear necessary for any treatment system for the contaminated groundwater. To reduce delays in construction or modification of a treatment system, permit applications should be made as soon as possible.
- The somewhat lower levels of contemination moving to the north of the facility must be addressed. An assessment must be made on the potential impacts to the deeper confined aquifer and shallow aquifer.
- The proposal to allow vertical infiltration through the leadfill does not seem environmentally sound. A low permeability cap would allow lateral movement toward the trench but reduce movement of contaminants into the confined aquifer. A design for a cap for closure of the landfill should be started as soon as possible.

Hammond

treatment facilitated, the interceptor trench could then be activated. should be on a separate fast track. This would allow the trench to be constructed before the met winter months. After poratts are obtained and Since construction or modification of a treatment system for the contaminated froundwater may be slightly delayed by issuance of the needed permits, we

Store After concurring on a schedule, it is our intense. We are available to meet or tell, with you at your convenience. We request that Reichhold Chemicals submit by August 12, 1005, a schedule, submit by August 12, 1005, a schedule, acree to submit by August 12, 1005, a schedule, acree to submit submit by August 12, 1005, a schedule, acree to submit

Division of Solid Waste Management Jack R. Roullian. Director

Kr. John Hann, "Nirchmental Protection Agency San This copy for

U.S. ENVIRONMENTAL PROTECTION AGENCY OFFICE OF EMERGENCY AND REMEDIAL RESPONSE C E R C L A

PAGE: 413
RUN DATE: 85/10/25
RUN TIME: 08:51:42

M.2 - SITE MAINTENANCE FORM

	* ACTION: _
EPA ID: MSD001661719	
SITE NAME: REICHHOLD CHEMICALS INC SOURCE: H	
STREET: REICHHOLD RD CONG DIST: 05	** *** *** *** *** *** *** *** *** ***
CITY: GULFPORT ZIP: 39501 *	
CNTY NAME: HARRISON CNTY CODE: 047	
ATITUDE: 30/25/20.0 LONGITUDE: 089/01/00.0	*
SMSA: 0920 HYDRO UNIT: 03170009	*
INVENTORY IND: Y REMEDIAL IND: Y REMOVAL IND: N FED FAC IND:	N *
NPL IND: N NPL LISTING DATE: NPL DELISTING DATE:	*/
APPROACH: SITE CLASS:	*
SITE/SPILL IDS:	*
RPM NAME: KEN RICHARDSON RPM PHONE: 404-881-2234	*
DIOXIN TIER: REG FLD1: REG FLD2: 2	* administration environmental unit
RESP TERM: PENDING () NO FURTHER ACTION ()	* PENDING (_) NO FURTHER ACTION (_)
NF DISP: NO VIABLE RESP PARTY () VOLUNTARY RESPONSE ()	* ·
ENFORCED RESPONSE () COST RECOVERY ()	*
TITE DESCRIPTION:	
	*
	*
	*
	* ·

U.S. ENVIRONMENTAL PROTECTION AGENCY OFFICE OF EMERGENCY AND REMEDIAL RESPONSE C E R C L A

PAGE: 414 RUN DATE: 85/10/25 RUN TIME: 08:51:42

M.2 - PROGRAM MAINTENANCE FORM

	10 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -		1 .	* ACTIO	N: _	y	1.			
SITE:	REICHHOLD	CHEMICALS INC.		•						
EPA ID:	MSD0016617	719 PROGRAM CODE	: HO1 PROGRAM TYPE:	*						
PROGRAM	QUALIFIER:	ALTAS LINK	: ₁	* one overallenee		, Alle years rep				
PROGRAM:	NAME:	SITE EVALUATION		*						
DESCRIPT	TION:							, 1		
				*						
				*						
		,	•	*		······································			 	
				*						

U.S. ENVIRONMENTAL PROTECTION AGENCY OFFICE OF EMERGENCY AND REMEDIAL RESPONSE C E R C L A

PAGE: 415 RUN DATE: 85/10/25 RUN TIME: 08:51:42

M.2 - EVENT MA NTENANCE FORM

				11 : :	** * * *		
			*	ACTION: _	<u> </u>		the state of the s
SITE: RE PROGRAM: SI	ICHHOLD CHEMICALS INC TE EVALUATION		,				Anna Carlos Carl
EPA ID: MS	D001661719 PROGRAM COD	DE: HO1 EVENT TYPE: DS1					
FMS CODE:	EVENT QUALIFIER	R: EVENT LEAD: E	*.		$\frac{1}{2} = \frac{1}{2}$		
EVENT NAME:	DISCOVERY	STATUS:	* *			·	
DESCRIPTION	:		*				
			*				
			* *				
ORIGINAL	CURRENT	ACTUAL					
START:	START:	START:	*	//		//	//
COMP :	COMP :	COMP : 79/11/01	* *	_/_/_		_/_/_	//
HQ COMMENT:				manuscript and the second seco			
			*				***************************************
RG COMMENT:							
,			*	**************************************			
COOP AGR #	AMENDMENT # S	TATUS STATE %					

U.S. ENVIRONMENTAL PROTECTION AGENCY OFFICE OF EMERGENCY AND REMEDIAL RESPONSE C E R C L A

PAGE: 416 RUN DATE: 85/10/25 RUN TIME: 08:51:42

M.2 - EVENT MAINTENANCE FORM

		· · · · ·				
1 . 1			* ACTION: _		$u = \frac{1}{2} \left(\frac{1}{2} \right) \right) \right) \right) \right)}{1} \right) \right) \right)} \right) \right)} \right)} \right)} \right)} \right)} \right)} \right$	· .
SITE: REIC PROGRAM: SITE	CHHOLD CHEMICALS INC					
EPA ID: MSDO	01661719 PROGRAM CODE:	HO1 EVENT TYPE: PA1		: '		·
FMS CODE:	EVENT QUALIFIER:	EVENT LEAD: E	*	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		٠٠
EVENT NAME:	PRELIMINARY ASSESSMENT	STATUS;	*			
DESCRIPTION:			*			
		. Li	A			
			*			
ORIGINAL	CURRENT	ACTUAL	,			
START:	START:	START: 79/12/01	*//			//
COMP :	COMP :	COMP : 79/12/01	* _/_/_		//	_/_/_
HQ COMMENT:			,			
RG COMMENT:			*			
COOP AGR #	AMENDMENT # STA	TUS STATE %	1			
	\$.		*			

U.S. ENVIRONMENTAL PROTECTION AGENCY OFFICE OF EMERGENCY AND REMEDIAL RESPONSE C E R C L A

PAGE: 417 RUN DATE: 85/10/25 RUN TIME: 08:51:42

M.2 - EVENT MAINTENANCE FORM

				•	-
:			* ACTION: _		
SITE: REICHHOL PROGRAM: SITE EVA	D CHEMICALS INC ALUATION		•		
EPA ID: MSD00166	1719 PROGRAM CODE: H	01 EVENT TYPE: SI1			
FMS CODE:	EVENT QUALIFIER:	EVENT LEAD: E	*		· · · · · · · · · · · · · · · · · · ·
EVENT NAME: SITE	INSPECTION	STATUS:	ego		
DESCRIPTION:	•				
			*		
			ж.		
1			*		
ig.			*		
· ·		q. t	•		
ORIGINAL	CURRENT	ACTUAL			
START:	START:	START: 80/02/01	* _/_/_		_/_/_
COMP :	COMP :	COMP : 80/02/01	*//	//	_/_/
HQ_COMMENT:			10-a 8111 - 10-10-0 - 1 - 10-10-0 - 11 - 10-10-0 - 1- 1 - 10-10-0 - 1- 1		
			*		
RG COMMENT:			*		
en en en en en en en en en en en en en e	en de la companya de la companya de la companya de la companya de la companya de la companya de la companya de La companya de la companya de	Constitution of the state of			
COOP AGR #	AMENDMENT # STATUS	STATE %	1.0		
	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1		*		

U.S. ENVIRONMENTAL PROTECTION AGENCY OFFICE OF EMERGENCY AND REMEDIAL RESPONSE C E R C L A

PAGE: 418
RUN DATE: 85/10/25
RUN TIME: 08:51:42

M.2 - EVENT MAINTENANCE FORM

*	The second secon	-	* ACTION: _			
SITE: REICH PROGRAM: SITE	HOLD CHEMICALS INC EVALUATION		AUTION			
EPA IO: MSD00	1661719 PROGRAM GODE: HO	1 EVENT TYPE: SI2				
FMS CODE:	EVENT QUALIFIEP:	EVENT LEAD: S	* .	·	en de la companya de la companya de la companya de la companya de la companya de la companya de la companya de Nome	· · · · · · · · · · · · · · · · · · ·
EVENT NAME: S	TITE INSPECTION	STATUS	4 .			
DESCRIPTION:			*		. 4.	
:			*			
			*			
ORIGINAL	CURRENT	ACTUAL	•			
START:	START:	START: 80/02/01	*/_/_		//	_/_/_
COMP :	COMP :	COMP : 80/02/01	*//	/	//_	_/_/_
HQ COMMENT:						
RG COMMENT:			*			
COOP AGR #	AMENDMENT # STATUS	STATE %	*			
	And the second s			**************************************		

04 MS REGION: STATE :

U.S. ENVIRONMENTAL PROTECTION AGENCY OFFICE OF EMERGENCY AND REMEDIAL RESPONSE CERCLA

PAGE: RUN DATE: 85/10/25 RUN TIME: 08:51:42

M.2 - COMMENT AINTENANCE FORM

SITE	Ξ:	REICHHOLD CHEMICALS	INC	-			
EPA	ID:	MSD001661719					
COM NO	COM	MENT	•			ACTION	
001	PART	T A- ON FILE		*		* entry visualization development and	
						×	i i

MODIFIED PRELIMINARY ASSESSMENT REPORT ARIZONA CHEMICAL COMPANY FORMERLY REICHHOLD CHEMICALS, INC.
MSD001661719
GULFPORT, MISSISSIPPI

PREPARED BY:

Chris Bowen
CERCLA Section
Hazardous Waste Division
Mississippi Office of Pollution Control (MS OPC)
P. O. Box 10385
Jackson, Mississippi 39289

November 15, 1990

REVIEWED AND EDITED BY:

Gail Macalusa
TSD Section
Hazardous Waste Division
MS OPC

and

Jim Hardage CERCLA Section Hazardous Waste Division MS OPC 94

FINAL REVISIONS

February 4, 1991

TABLE OF CONTENTS

- 1. Introduction
- 2. Background
- 3. Facility Description
- 4. Waste Description/Containment
- 5. Visual Site Investigation
 - (a) Table 1
 - (b) SWMU Data Summary Sheets
- 6. Sampling History
- Geology/Hydrology
- 8. The Aquifer of Concern
- 9. The Deeper Aquifer
- 10. Climate/Precipitation
- 11. Surface Water
- 12. Sensitive Environments
- 13. Conclusions and Recommendations
- 14. Appendix
 - (a) HRS II Checklist
 - (b) References

Introduction

The following is a modified preliminary assessment (PAM) of Arizona Chemical Company, formerly Reichhold Chemicals, Inc., in Gulfport, Harrison County, Mississippi.

County Code:

047

Congressional District:

05

Coordinates:

Latitude Longitude 30° 25' 28" 89° 01' 08"

Location:

Predominantly located in the E/2 of the NE/4 of Section 19-T7S-R10W and partially located in W/4 of the NW/4 of Section 20-T7S-R10W.

Directions to Site:

From Jackson, Mississippi, proceed south on Hwy. 49 South for about 155 miles to the intersection of Hwy. 49 S and I-10. Take I-10, go east for about 3.7 miles, and exit south (to the right). Go about 1 mile and turn east (to the left) onto Reichhold Road. Go about 1/2 mile and take the right fork. Go about 1/4 mile and turn right onto the facility access road.

Contact Officials:

B.M. Grafton
Plant Manager
11015 Reichhold Road
P. O. Box 6548
Gulfport, MS 39506-6548

Charles E. Johnson
Manager Environmental and
Product Regulatory Affairs
1001 E. Business Highway 98
Panama City, FL 32401

Background (References 1, 5, 6, 7, & 8)

Arizona Chemical Company manufactures primarily hydrocarbon resins and hydrorefined terpene resins. They produce approximately 30,000 to 50,000 tons of various resins and binders per year. Hazardous wastes are generated by the steam distillation of these resins to remove the solvent and short chain polymers.

Reichhold Chemicals, Inc. began operation of this plant in early June of 1965.

In December 1968, Reichhold was issued a State tolerance permit for discharge of wastewater. Subsequent to this permit, Reichhold was issued additional wastewater discharge permits until 1974. In June, 1974, Reichhold was issued a five-year NPDES permit to discharge wastewater to an unnamed tributary of Big Lake. Subsequent renewals of the NPDES permit have been issued. Arizona Chemical is currently operating under an NPDES permit that expires in April of 1995.

A number of instances of past non-compliance with the NPDES permit have been documented. In at least one case, Reichhold was ordered by the Mississippi Commission on Natural Resources (Commission) to pay a fine of \$25,000 for non-compliance. Reichhold paid this fine in full in December of 1983. Additionally, the facility was placed under order again by the Commission in April of 1984 for failure to meet NPDES permit criteria. In April, 1985, two ammonia stripping ponds (SWMUs #17 and #18) were put into operation to enable the facility to meet NPDES ammonia limitations.

In February, 1980, the US-EPA, Water Surveillance Branch, in conjunction with the State, conducted a site investigation, as requested by the EPA Air and Hazardous Waste Division, to determine if the facility presented a potential problem. The investigation was in response to an industrial waste disposal inventory that Reichhold had voluntarily submitted to the Eckhardt Subcommittee. The results of the investigation are included in Reference 8 of this report.

In July of 1982, the US-EPA requested that Reichhold submit part B of their application for a RCRA permit. Reichhold was issued a RCRA permit for the storage of hazardous waste in tanks in July of 1984.

In November, 1983, the Mississippi Department of Natural Resources, Bureau of Pollution Control (BPC), noted that leachate was seeping into the adjacent Industrial Seaway. The BPC instructed Reichhold to prepare a plan for conducting hydrogeological investigations, installing monitor wells, and sampling groundwater. The installation of eight monitor wells was completed in April, 1984. Results of the investigation concluded that the leachate came from two sources. Most of the leachate was coming from the large on-site landfill and a smaller amount was coming from the tank farm area.

A groundwater interceptor trench and treatment system was installed in the fall of 1986 to collect and treat contaminated groundwater that was seeping into the Industrial Seaway.

The Commission required closure of the landfill by order in July, 1987. The closure of the landfill was completed in October, 1988.

The facility has held a State of Mississippi Air Pollution Control permit since at least 1983. Currently, Arizona Chemical has filed an application for renewal. The permit regulates the industrial boiler and other emission points at the facility.

In September, 1989, Reichhold sold the Gulfport facility to Arizona Chemical.

Facility Description (References 1, 2, and 7)

The facility is located on about 59 acres of land. About 35 acres of the property is currently in use, and includes process and storage areas, wastewater treatment ponds, fire ponds, laboratory and office buildings, and maintenance shops. The old landfill is included in this 35-acre estimate.

The facility is located within 3,600 feet, generally north, of Gulfport's incorporated boundary, and approximately 1½ miles south of Interstate 10. Industries are located west and northwest of the facility. A U.S. Corps of Engineers dredge spoils area is located immediately east of the facility. There are some scattered bodies of water in the vicinity (south, east, and north) of the facility.

The facility's only access by land is from the west via Reichhold Road. A railway delineates the west boundary of the facility grounds. This railway adjoins additional tracks within the Gulfport Industrial Park, and finally connects to the Illinois Central Gulf railroad track about five miles to the west.

Waste Description/Containment (References 5, 6, 8, 13, & 14)

- An August, 1979 "Industrial Waste Disposal Inventory" that Reichhold voluntarily submitted to the Eckhardt Subcommittee reported the following disposal:
 - (1) 850,000 gallons of water per day-- on-site/off-site (ditch to Big Lake).
 - (2) 21.2 hundred tons per year-- on-site landfill (chemical solid).
 - (3) 37.8 hundred tons per year—on-site incineration (chemical solid).
 - (4) 672,000 gallons per year—sold to out of state companies (chemical liquid).
 - (5) 60 tons per year -- wood, metal, paper, etc. -- to Beat 2 Landfill or Saucier Landfill.
- EPA Form 3 (hazardous waste permit application) filed by Reichhold circa 1980 indicates an annual generation of 2,244 tons of RCRA F003 and F005 listed waste, and an estimated 198,700 tons of D001 (ignitable) waste. In 1989, due to a change in ownership, Arizona Chemical refiled EPA Forms One and Three (i.e., a Part A). This Part A stated that Arizona Chemical was producing about 2,244 tons a year of D001 waste.
- An August, 1982 EPA estimate of waste quantity in the landfill was 8,500 tons. In October of 1986, a facility report estimated the amount of waste in the landfill to be in the range of 32,000 to 40,000 cubic yards (tons).
- According to an ERM Southwest, Inc. 1983 report, routine operation of the plant produced approximately 500 tons per year of sludge, generally characterized as 22% resin, 29% solvent, 34% catalytic salts, and 15% water. The sludge was continually disposed of in the landfill.
- August, 1984 correspondence (see Reference 6) identifies seven scattered piles of gray substance (aluminum chloride) "near the landfill" and "on top of the dike."
- Also in 1984, an assessment of the shallow aquifer indicated that an inorganic leachate plume was emanating from the landfill. The plume was thought to be the result of dissolved ammonia and chloride leaching out of the filter cake wastes in the landfill. A January, 1985 report characterized the filter cake as a "production processgenerated filter cake consisting of solid ammonium-aluminum chloride complex and organic solvents."

Containment:

- Historically, the landfill had no liner and runoff was inadequately contained, i.e., the dike was faulty. This area has since been stabilized.
- The groundwater interceptor trench in place south of the landfill and the tank farm appears to be doing an adequate job of recovering shallow contaminated groundwater.
- April of 1982, BPC Industrial Wastewater correspondence noted that the facility had experienced many major and minor spills which had contaminated State waters, and also noted that a number of areas around the plant had spilled product/raw materials that were outside of containment structures and, therefore, subject to rainfall runoff. Correspondence also stated that a large amount of material on the facility grounds was the result of leaking drums of spent Dowtherm A. Some of these spill areas have since been cleaned up.
- The three RCRA-permitted hazardous waste tanks contain D001 waste and are contained by a system of concrete dikes on a concrete base with a corresponding sump.
- The less-than-ninety day storage area intermittently receives hazardous waste in drums. This area has no liner or dikes and the drums are stored directly on the ground (i.e., no concrete pad).
- Solvent separator tanks (SWMU 7) are not contained in a diked area.
- A series of lagoons contain wastewater. Some of these lagoons are lined with concrete or hypalon liners, but the two aeration lagoons (SWMU 24) are unlined.

The physical states of the wastes at the facility are solid, sludge, and liquid. The hazardous constituents benzene and phenol, which have been detected in waste, leachate, and/or shallow groundwater, are somewhat persistant and severely toxic.

Visual Site Investigation

A Visual Site Investigation (VSI) was conducted at the facility by MS OPC personnel on October 30th and 31st, 1990.

Information and recommendations concerning each of the SWMUs and areas of concern identified during the VSI are contained in the following table and data summary sheets.

TABLE 1
Solid Waste Management Units (SWMUs) and Areas of Concern (AOC) at Arizona Chemical Company Based on VSI

				-	
	Name	SWMU	RCRA	Status	Recommendation
1.	Lab Sump, Drain, Barrel Storage Area, and	or AOC SWMU	Regulated No	Active	NFRAP
	Adjacent Ditch	-		4	
2.	Groundwater Interceptor Trench & Sump	SWMU	No	Active	NFRAP
3.	Underground Storage Tank Excavation & Corresponding Discharge Pipes	SWMU	Ио	Inactive	e CS
4.	Storm Water Catch Basin	SWMU	No	Active	CS
5.	Truck Loading & Unloading Area	SWMU	No	Active	CS
6.	Process Area Sumps & Drains	SWMU	No	Active	CS.
7.	Solvent Separators & Pipeline Leak	SWMU	No	Active	CS
8.	All Tank Farm Sumps with the Exception of the Sump for Hazardous Waste Tanks	SWMU	NO	Active	ÑFRAP
9.	Hazardous Waste Tank Battery Pump Sump	SWMU	No	Active	CS
10.	Past Location of the Solid Waste Incinerator and Corresponding Sump	SWMU	No	Sump is Active.	CS
11.	Industrial Boiler Area	SWMU	No	Active	NFRAP
12.	Stained Soil Between Barrels	SWMU	No	Active	CS
13.	Less than 90 Day Storage Area	SWMU	Yes	Active	CS
14.	Barrel Storage Area	SWMU	No	Active	CS
15.	Destroyed Barrel Area	SWMU	No	Inactive	e CS
16.	Groundwater Interceptor Trench's Oil/Water Separator	SWMU	No	Active	NFRAP

		-		-	•
17.	Pond #5 (Settling Basin or Accumulator Pond)	SWMU	No	Active	CS
18.	Pond #6 (Ammonia Pond)	SWMU	No	Active	NFRAP
19.	Ponds #3 & 4 (Settling Basins)	SWMU	No	Active	CS
20.	Cooling Water Separator & Maintenance Shop Sump	SWMU	No	Active	NFRAP
21.	Area Surrounding Drain from HCl & Caustic Tanks	SWMU	No	Active	CS
22.	Maintenance Shop	SWMU	No	Active	NFRAP
23.		ermitted CRA Unit	Yes	Active	NFRAP
24.	Ponds #1 & 2 (Aeration Lagoons)	SWMU	No	Active	CS
25.	Pipeline Leak Behind Maintenance Shop	SWMU	No	Inactive	CS
26.	Large API Separator	SWMU	No	Active	CS
27.	Landfill/Surface Impoundment	SWMU	No	Inactive	NFRAP
1.	Industrial Seaway Embankment	AOC	No	Inactive	CS
2.	Railroad Track Vicinity	AOC	No	Active	CS
3.	Stained Ground & Leaking Pipe Adjacent to Dike of Tank Farm	AOC	No	_Inactive	CS
4.	Stained Soil by Dumpster	AOC	No	Inactive	NFRAP
5.	Past Wastewater Discharge Ditch System	AOC	No	Inactive	CS
6.	Reichhold Road Ditch	AOC	No	Inactive	CS
7.	Intermittent Stream NE of the LF/SI	AOC	No	Inactive	CS
8.	Electric Substation	AOC	No	Active	NFRAP

Recommendations Key:

(1) NFRAP - No Further Remedial Action Planned
(2) CS - Confirmatory Sampling

SWMU NUMBER: 1

PHOTO NUMBER: 1 -

NAME: Laboratory Sump, Drain, Barrel Storage Area, and Adjacent Ditch

TYPE OF UNIT:

PERIOD OF OPERATION: Sump may have been there since plant opened.

PHYSICAL DESCRIPTION AND CONDITION: Slight oil sheen visible in sump. Sump is approximately 4 feet x 7 feet and is a concrete unit. There are 9 barrels behind and adjacent to the lab. Some barrels are in good shape, but a couple are rusty. They are located on top of concrete. The concrete has a couple of small black stains. There was no staining, nor was there any distressed vegetation noticeable in association with the small pipe entering the ditch behind the lab.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED: Most solvents collected in lab, but small amount is discharged to the sump from the washing of beakers in the laboratory sinks. The barrels contained toluene, methanol, and other materials for laboratory use.

RELEASE PATHWAYS: Air () Surface Water () Soil (X)

Groundwater () Subsurface Gas ()

HISTORY AND/OR EVIDENCE OF RELEASE (s): No history of sump overflow during rainfall that they know of.

RECOMMENDATIONS: No Further Action (X

RFA Phase II Sampling (

RFI Necessary (

REFERENCES: Grafton (plant manager), Johnson (environmental manager, Panama City), Reference 8

COMMENTS: The materials in the barrels are for laboratory uses. They just rebuilt this sump in September. The wastewater from this sump goes to the large API separator. All lab sinks connected to this sump via drain in Photo #2. The smaller of the two pipes entering the ditch east of the rear of the laboratory is from an abandoned laboratory floor drain per correspondence dated November 13, 1990, in Reference 8.

Project Name: Arizona Chemical Co. (Reichhold) Date: 11/9/90

City, State: Gulfport, Mississippi

SWMU NUMBER: 2 PHOTO NUMBE	ER: 6 - 8
NAME: Groundwater Interceptor Trench & Sump	
TYPE OF UNIT:	
PERIOD OF OPERATION: Fall 1986 - present.	
PHYSICAL DESCRIPTION AND CONDITION: Delineated It meanders along the south side of the facil (1 on each end of the trench). In the middle extraction sump is located. The extraction six 12 feet, and 8 feet deep. It is a concrete A sheen was visible in the extraction sump.	ity. There are 2 man-holes of the trench is where the sump is approximately 8 feet
WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED: leachate recovery.	Contaminated groundwater and
RELEASE PATHWAYS: Air () Surface Water ()	Soil ()
Groundwater ()	Subsurface Gas ()
HISTORY AND/OR EVIDENCE OF RELEASE (s):	
RECOMMENDATIONS: No Further Action (X) RFA Phase II Sampling () RFI Necessary ()	
REFERENCES:	
COMMENTS: Prior to the groundwater intercept water trench that began to the south of the just beyond the north-south road that passes	andfill and ran westerly to
Project Name: Arizona Chemical Co. (Reichhol City, State: Gulfport, Mississippi	ld) Date: 11/9/90

SWMU NUMBER: 3

PHOTO NUMBER: 16 - 18

NAME: Underground Storage Tank Excavation and Corresponding Discharge Pipes

TYPE OF UNIT:

PERIOD OF OPERATION: 1965 to removal in 1989

PHYSICAL DESCRIPTION AND CONDITION: Approximately 50 foot x 50 foot sandy plot on west side of tank farm and east of railroad tracks. Photo #18 shows piles of scales that had been scraped from a caustic tank and an oil/water separator. The scales were very rusty. There is probably 2 wheel-barrow loads. The separator was apparently a secondary stage separator.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED: Naptha, Xylene, Toluene, and VT resin. According to them, at one time one of these tanks contained a vinyl toluene monomer.

RELEASE PATHWAYS: Air () Surface Water () Soil (X)

Groundwater (X) Subsurface Gas ()

HISTORY AND/OR EVIDENCE OF RELEASE (s): Not that Grafton knows of. However, an analytic report that Grafton sent the OPC post-VSI, contained composite samples taken at 3 feet deep and 8 feet deep that had varying levels of a-methyl styrene, styrene, and the BTEX's.

RECOMMENDATIONS: No Further Action

RFA Phase II Sampling (X)

RFI Necessary ()

REFERENCES: Grafton, Yelverton, OPC (UST) Files.

COMMENTS:

Project Name: Arizona Chemical Co. (Reichhold)

City, State: Gulfport, Mississippi

Date: 11/9/90

•			سهيڪ ۽ د		
SWMU NUMBER: 4	I	PHOTO NUMBER:	27		
NAME: Storm Wate	r Catch Basin	American Control of the Control of t			-
TYPE OF UNIT:	•				
PERIOD OF OPERATI	on:			Es. —	
in the basin on i	ION AND CONDITION: t's north end. The railroad tracks.	ne "basin" is	located appr	oximately 1	0
all storm water r	ARDOUS CONSTITUENT un-off from AOC #2 nsfer a solvent-ta	2 and SWMU #5.	Via SWMU /		
RELEASE PATHWAYS:	Air () Surface	Water ()	Soil ()	; :	
•	•	vater (X) Sub	surface Gas	()	
HISTORY AND/OR EV	IDENCE OF RELEASE	(s):		•	
RECOMMENDATIONS:	No Further Action RFA Phase II Samp RFI Necessary	oling (X)			
REFERENCES: Graft	on				
COMMENTS: Any fl large API separat	uids or materials	caught here w	ould be tran	sferred to	the

Project Name: Arizona Chemical Co. (Reichhold)
City, State: Gulfport, Mississippi Date: 11/9/90

SWMU NUMBER: 5 PHOTO NUMBER: 21, 22, & 40

NAME: Truck Loading and Unloading Area

TYPE OF UNIT: Sump and Drainage

PERIOD OF OPERATION:

PHYSICAL DESCRIPTION AND CONDITION: This sump is adjacent to and directly east of where the tanker car sits. The sump has stained concrete around it; Photo # 22. A slight oil sheen was seen on the water draining to this sump and in the sump on both days of the VSI. Drainage in the sump vicinity was towards the sump. However, closer to the loading dock (north of the sump) the drainage appears to be relatively uncontained and has the ability to end up on the tracks (AOC #2 vicinity) where it would leave the concreted area and drain to the soil. Drainage from this area could potentially adjoin drainage from SWMU #7. Water entering this sump is transferred to the large API separator.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED: It is possible that solvents such as mineral spirits or raw materials such as dicyclopentadiene could enter this sump and drainage area. The mineral spirits could come from trucks being unloaded in this vicinity, per Grafton.

KELEASE FAIRWAIS	AIr ()	Surrace wate	E () 20TT (5	7.)	
4	,	Groundwater	()	Subsurface	Gas ()
HISTORY AND/OR E	VIDENCE OF	RELEASE (s):			-	
RECOMMENDATIONS:	No Furthe RFA Phase RFI Neces	II Sampling	(X) (X)			
REFERENCES: Gra	fton				. IVT .	
COMMENTS:		ter		* '	•	-
,			-		: -	
· ·					•	

Project Name: Arizona Chemical Co. (Reichhold) Date: 11/9/90

City, State: Gulfport, Mississippi

SWMU NUMBER: 6	: 6
----------------	-----

PHOTO NUMBER: 30, 31, 33-39

NAME: Process Area Sumps & Drains

TYPE OF UNIT:

PERIOD OF OPERATION:

PHYSICAL DESCRIPTION AND CONDITION: Both process areas have a series of drains and catch basins. Resinous materials cling to the grating on most, but they don't impede runoff capture. All the process areas are concreted with the concrete sloping towards the drainage system. Some areas are partially or totally diked outside of the drainage system. A pump sump was in the totally diked area surrounding resin tanks 315 and 316; Photos 38 and 39.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED: Solvents are used in the process areas.

RELEASE PATHWAYS: Air () Surface Water () Soil (X)

Groundwater (X) Subsurface Gas ()

HISTORY AND/OR EVIDENCE OF RELEASE (s): There were many cracks and crevices in the concrete at the time of the VSI. Photo 37 depicts a break in the dike.

RECOMMENDATIONS: No Further Action

RFA Phase II Sampling (X)

RFI Necessary (

REFERENCES:

COMMENTS: The drainage systems in the process area appear to be able to adequately contain any minor spills or runoff. All of this drainage ends up being processed through the large API separator.

Project Name: Arizona Chemical Co. (Reichhold) Date: 11/9/90

City, State: Gulfport, Mississippi

=43

SWMU NUMBER: 7	PHOTO NUMBER:	40 - 42	
NAME: Solvent Separators an	d Pipeline Leak	-	B
The state of the s	T IP III III		
TYPE OF UNIT:			
PERIOD OF OPERATION:	:	e Hermania	en de la companya de la companya de la companya de la companya de la companya de la companya de la companya de La companya de la companya de
PHYSICAL DESCRIPTION AND CONfarm. Adjacent to, and dire of the extreme NW corner of According to Johnson, the so into this diked area. See Pleak.	ctly south of these the tank farm, larg lvent separator tan	separators, in a e tanks have been ks are ear-marked	diked area excavated.
WASTES AND/OR HAZARDOUS CONSthese 3 tanks and water is k		Recycled solvent	goes into
		÷ ;	
RELEASE PATHWAYS: Air ()	Surface Water ()	Soil ()	
•	Groundwater () Su	bsurface Gas ()	
HISTORY AND/OR EVIDENCE OF R migration pathway of a past			visible
RECOMMENDATIONS: No Further RFA Phase RFI Necess	II Sampling (X)		
REFERENCES: Grafton and Joh	nson		
COMMENTS: Some storm water r A soil sample taken in AOC # the concrete in Photo #40 an	2 would address whe	ther this release	crossed
<u> </u>			•
Project Name: Arizona Chemi City, State: Gulfport, Mis		Date: 11/9/	90

•			
SWMU NUMBER: 8	рното пимве	R: 43 - 45, and 49	
NAME: All Tank Farm Sumps wit Waste Tanks.	h the Exception	of the Sump for the	e Hazardous
TYPE OF UNIT:			
PERIOD OF OPERATION:		en en en en en en en en en en en en en e	9.1
PHYSICAL DESCRIPTION AND CONDITHE majority of the concreted farm.			
WASTES AND/OR HAZARDOUS CONSTITUTE that contain the molecular sie out and leave recycled solvent #45 services the diked contain process vessel was marked "PE-all the tanks within the tank	ves are used to only, per John ment area of th l"). Hazardous	take the last trace son. The pump sump ese 4 process vesse constituents conta	e of water in Photo ls (each
RELEASE PATHWAYS: Air () Su	rface Water ()	Subsurface Soil	(X)
Groundwater	(X) Subsurfac	e Gas () Soil ())
HISTORY AND/OR EVIDENCE OF REL appeared adequate.	EASE (s): All	tank farms were dik	ed and sumps
RECOMMENDATIONS: No Further A RFA Phase II RFI Necessar	Sampling ()	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
REFERENCES: Johnson and Graft	on		
COMMENTS: All spills within t should eventually end up in th			

these sumps is apparently processed to and through the large API separator.

Tank Farm will need subsurface soil samples taken around the entire perimeter.

Project Name: Arizona Chemical Co. (Reichhold) Date: 11/9/90 City, State: Gulfport, Mississippi

	SWITO DATA SUTIMARI	, the state of the	
SWMU NUMBER: 9	PHOTO NUMBER	: 46	
NAME: Hazardous Waste	Tank Battery's Pump Sump)	
TYPE OF UNIT:			-
PERIOD OF OPERATION:	· · · · · · · · · · · · · · · · · · ·	ensea.	-
up can be seen around the of the 2 tank batteries 1, 5, 11, 19, 21, and 22 to and services the haza	ne sump and coating part that this sump serves. I in one separately dike ardous waste tank batter n are hazardous) via a l	on and resinous material bets of the concrete floorin This sump services tanks and battery, but is connect by (tank #'s 10, 17, 25, 3) hole in the dike where the	g ed 0,
e de la companya de l	-		
WASTES AND/OR HAZARDOUS from the hazardous waste	CONSTITUENTS MANAGED: e tank ST-10 via a pipe	Water can be seen coming into this sump.	
RELEASE PATHWAYS: Air	() Surface Water ()	Subsurface Soil (X)	
Groun	ndwater (X) Subsurface	Gas () Soil ()	-
HISTORY AND/OR EVIDENCE	OF RELEASE (s):		
		*See comment below	
REFERENCES:			
historically been contain	ined within concrete dil 1, then subsurface soil	ner or not the tanks have kes/concrete flooring. If samples should be taken a	

Date: 11/9/90

Project Name: Arizona Chemical Co. (Reichhold) City, State: Gulfport, Mississippi

SWMU	NUMBER:	10
DMLTO	MOLIDER.	τv

PHOTO NUMBER: 50

NAME: Past Location of the Solid Waste Incinerator and Corresponding Sump

TYPE OF UNIT:

PERIOD OF OPERATION:

PHYSICAL DESCRIPTION AND CONDITION: The rectangular area behind the sump's drain was once the location of a part of the incinerator. The rest of the incinerator sat atop an elevated (6-8 foot high) concrete pad within this same diked area. This diked area is located on the extreme SE corner of the thermal and catalytic process area. The Dowtherm heaters are located in this same diked area.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED: It is unknown what type of wastes were incinerated in the incinerator. The sump was receiving water runoff from condensation from a steam line during the VSI.

RELEASE PATHWAYS: Air () Surface Water () Soil (X)

Groundwater () Subsurface Gas ()

HISTORY AND/OR EVIDENCE OF RELEASE (s):

RECOMMENDATIONS: No Further Action ()
RFA Phase II Sampling (X)

RFI Necessary ()

REFERENCES: Richard Ward

COMMENTS: According to Richard Ward (plant production superintendent), nothing was put in this incinerator, nor was it run in the 18 years that he's been at the plant. He said part of the incinerator sat on the concrete pad and part was where the rectangular excavated cement is.

Project Name: Arizona Chemical Co. (Reichhold) Date: 11/9/90

City, State: Gulfport, Mississippi

SWMU NUMBER: 11

PHOTO NUMBER: 51-53

NAME: Industrial Boiler Area

TYPE OF UNIT: Solvent recycling boiler.

PERIOD OF OPERATION:

PHYSICAL DESCRIPTION AND CONDITION: Located on the eastern side of the process area. Soils to the right of the boiler appear saturated in steam-generated condensate. The facility's drinking water well is located within 10 feet to the left of the boiler. There was no significant staining of soil or distressed vegetation observed in the boiler vicinity.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED: Recovered solvents are combusted in the boiler to produce energy for the facility process.

RELEASE	PATHWAYS:	Air	(X)	Surface	Water	()	Soil	(X)	
			÷	Groundwi	oter (1	Subcurfoo	i e.e.	

HISTORY AND/OR EVIDENCE OF RELEASE (s):

RECOMMENDATIONS: No Further Action (X) 1 H RFA Phase II Sampling () RFI Necessary ()

REFERENCES: Johnson, Reference #8

COMMENTS: There are some barrels in an adjacent shed. The floor of the shed is concreted. A steam-generated condensate puddle was seen beneath these barrels. These barrels contain water treating chemicals that ACC uses to clean out the boiler with.

Project Name: Arizona Chemical Co. (Reichhold) Date: 11/9/90

City, State: Gulfport, Mississippi

SWMU NUMBER: 12	PHOTO NUMBER: 55	
NAME: Stained Soil Between Barre	· ·	
TYPE OF UNIT:	Maria de la companya de la companya de la companya de la companya de la companya de la companya de la companya La companya de la companya de la companya de la companya de la companya de la companya de la companya de la co	
PERIOD OF OPERATION:		
least some were empty. Ground was	N: Barrels were in good condition. At s stained with a blackish, brownish tint diately east of the hazardous waste tank uth road.	
WASTES AND/OR HAZARDOUS CONSTITUEND barrels contained tall oil.	NTS MANAGED: According to Johnson, thes	e
RELEASE PATHWAYS: Air () Surfac	ce Water () Soil (X)	
Ground	dwater () Subsurface Gas ()	
HISTORY AND/OR EVIDENCE OF RELEASE	E (s):	
RECOMMENDATIONS: No Further Action RFA Phase II San RFI Necessary		
REFERENCES: Grafton, Johnson		
COMMENTS: Barrels were apparently them".	y steam cleaned and the "recycler's love	:
Project Name: Arizona Chemical Co City, State: Gulfport, Mississip		

SWMU NUMBER: 13 PHOTO NUMBER: 56

NAME: Less Than 90 Day Storage Area

TYPE OF UNIT:

PERIOD OF OPERATION:

PHYSICAL DESCRIPTION AND CONDITION: Located east of the tank farm and east of the facility north/south road, and immediately west and adjacent to Pond #5. It is an uncovered, approximately 25 foot x 35 foot, area with a surficial soils base. Cross ties and signs delineate the area. Only 1 barrel was stored in the area and it sat atop a pallet.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED: The barrel present during the VSI contained absorbent booms that were used to pick up spills around the facility. According to manifests of wastes stored here during 1989, wastes stored were: (1) Benzene, methyl (2) Xylene [1] (3) Benzene [1, T]. In September and October of 1989, a total of 258 drums of these materials were stored here.

RELEASE	PATHWAY	S: Air	()	Surface Water () Soil (X)	
		٠		Groundwater ()	Subsurface Gas ()	
VGOTOTE	ANT AND	EXITERIOR	OF.	מפניפגפי (_\.		

HISTORY AND/OR EVIDENCE OF RELEASE (s):

RECOMMENDATIONS: No Further Action ()
RFA Phase II Sampling (X)
RFI Necessary ()

REFERENCES: Reference #8

COMMENTS:

Project Name: Arizona Chemical Co. (Reichhold) Date: 11/9/90

City, State: Gulfport, Mississippi

SWMU	NUMBER:	14	•	PHOTO	NUMBER:	57	

NAME: Barrel Storage Area

TYPE OF UNIT:

PERIOD OF OPERATION:

PHYSICAL DESCRIPTION AND CONDITION: Approximately 50 barrels. Most are in good shape; at least 1 is not. Not all of these barrels have tops on them and are subject to the elements. Five of the barrels were labeled "thinning tank trench July 12, 1990," and others were labeled "Road scrapings". This area is located east of the facility's N-S road and just north of the groundwater interceptor trench.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED: Grafton said of the barrels stored in this area, the barreled materials they've tested were all non-hazardous. He did say that some of the barrels may have some solvent constituents in them.

RELEASE	PATHWAYS:	Air ()	Surface Wate	er ()	Soil (X)	
			Groundwater	()	Subsurface	Gas	()

HISTORY AND/OR EVIDENCE OF RELEASE (s):

RECOMMENDATIONS: No Further Action ()
RFA Phase II Sampling (X)
RFI Necessary ()

REFERENCES: Grafton

COMMENTS: The barrels without tops contained waste materials from around the plant (spent gloves, uniforms, and rainwater). Other barrels were supposed to have more of the same.

Project Name: Arizona Chemical Co. (Reichhold) Date: 11/9/90

City, State: Gulfport, Mississippi

SWMU NUMBER: 15	PHOTO NUMBE	R: 58	
NAME: Destroyed Barrel Area			
TYPE OF UNIT:		मुझ्ये ।	•
PERIOD OF OPERATION:			-
PHYSICAL DESCRIPTION AND CONDIT barrel top remains in the rubbl had materials in it. A trench further mashed and/or spread th and immediately adjacent to Pon	e of what appe track from a p e material out d #5.	ared to be a barre iece of heavy equip . This area is loo	L that once oment has
WASTES AND/OR HAZARDOUS CONSTIT	UENTS MANAGED:	Unknown.	- a ₂ ···.
RELEASE PATHWAYS: Air () Sur	face Water ()	Soil (X)	• •
Gro	undwater ()	Subsurface Gas ()
HISTORY AND/OR EVIDENCE OF RELE	ASE (s):	•	
RECOMMENDATIONS: No Further Ac RFA Phase II RFI Necessary	Sampling (X)		
REFERENCES: Grafton		1 5 <u>5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5</u>	
COMMENTS:		na na na na na na na na na na na na na n	
			÷ P
Project Name: Arizona Chemical City, State: Gulfport, Missis		d) Date: 11/9	/90

SWMU NUMBER: 16	PHOTO NUMBER	R: 58 and 59	
NAME: Groundwater Intercep	otor Trench's Oil/Wat	ter Separator	
TYPE OF UNIT:			•
PERIOD OF OPERATION:			
PHYSICAL DESCRIPTION AND (a pipe that disposes of wathe south end of Pond #5.			
	r ir pila i magintoga, toda si kin kin kin kin		
WASTES AND/OR HAZARDOUS Co	ONSTITUENTS MANAGED:	Contaminated grou	ındwater
		<i>;</i> "	
RELEASE PATHWAYS: Air ()) Surface Water ()	Soil ()	
1	Groundwater ()	Subsurface Gas ())
HISTORY AND/OR EVIDENCE OF	F RELEASE (s):		
	ner Action (X) se II Sampling () essary ()		
REFERENCES:	-		
COMMENTS: This unit coller interceptor trench. The value of to an existing plant store	wastewater goes to Po	ond #5 and the oil	
Project Name: Arizona Che City, State: Gulfport, N		Date: 11/9/	'90

SWMU NUMBER: 17 PHOTO NUMBER: 59
NAME: Pond #5 (Settling Basin or Accumulator Pond)
TYPE OF UNIT:
PERIOD OF OPERATION: April, 1985 - present.
PHYSICAL DESCRIPTION AND CONDITION: Hypalon lined pond. An orange/amber sheen can be seen across the bottom 1/5 end of this pond (the SW end). The biggest pond at the facility.
WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED: Receives wastewater from groundwater interceptor trench's oil/water separator and wastewater from SWMU #7.
RELEASE PATHWAYS: Air () Surface Water () Subsurface Soil (X)
Soil () Groundwater (?) Subsurface Gas ()
HISTORY AND/OR EVIDENCE OF RELEASE (s): Corroding and leaking barrels of Dowtherm A was once stored here.
RECOMMENDATIONS: No Further Action () RFA Phase II Sampling (X) RFI Necessary ()
REFERENCES: Grafton
COMMENTS: According to a schematic in Reference 5 and a memo in Reference 8, this area was once a drum storage area and they had many leaking barrels stored here. Probable subsurface soil boring and/or groundwater monitoring needed here.
Project Name: Arizona Chemical Co. (Reichhold) Date: 11/9/90 City, State: Gulfport, MS

SWMU NUMBER: 18	PHOTO NUMBER: 60
NAME: Pond #6 (Ammonia Pond)	
TYPE OF UNIT:	
PERIOD OF OPERATION: April, 198	o - present.
PHYSICAL DESCRIPTION AND CONDITION	ON: Hypalon lined with sparging unit.
WASTES AND/OR HAZARDOUS CONSTITUTION From Pond #5 after that wastewat	ENTS MANAGED: Receives wastewater er has had caustic added to it.
RELEASE PATHWAYS: Air (X) Surf	ace Water () Soil ()
Groundwater (?) Subsurface Gas ()
HISTORY AND/OR EVIDENCE OF RELEA	SE (s):
RECOMMENDATIONS: No Further Act RFA Phase II S RFI Necessary	ampling ()
REFERENCES:	
prior to reaching the NPDES outf According to OPC, Air Division f	from this pond has acid added to it all. This pond operates intermittently. iles this pond is an air emissions boring and/or groundwater monitoring
Project Name: Arizona Chemical C City, State: Gulfport, MS	o. (Reichhold) Date: 11/9/90

SWMU NUMBER: 19

PHOTO NUMBER:

62 -

NAME: Ponds 3 and 4 (Settling	g Basins)	e de la companya de la companya de la companya de la companya de la companya de la companya de la companya de	
TYPE OF UNIT:	`-= 	- 	
PERIOD OF OPERATION:			
PHYSICAL DESCRIPTION AND CONTresinous material built up or most settling basin); Photo # spilled over this dike as weldike.	n concrete diking 64. Some of the	of Pond #3 (western resinous material h	ı - ıas
WASTES AND/OR HAZARDOUS CONST wastewater from the Ponds 1 a			re
RELEASE PATHWAYS: Air () S	Surface Water ()	Soil (X)	
	Groundwater ()	Subsurface Gas ()	
HISTORY AND/OR EVIDENCE OF REapparent resinous material th			
RECOMMENDATIONS: No Further RFA Phase I RFI Necessa	II Sampling (X)		
REFERENCES:			
COMMENTS: There was a hose for Ponds (3 & 4) and (1 & 2). Or recirculate water back to Porout of balance. Possible por and possible subsurface boring	Grafton said they $\operatorname{ad}\ \#1$ on the occa $\operatorname{ad}\ \operatorname{bottom}\ \operatorname{sludge}$	use this some times sion that the system	s to n is
Project Name: Arizona Chemica	al Co. (Reichhold) Date: 11/9/9	90
City, State: Gulfport, MS			•
=44	·	-A	
· ·		· · · · · · · · · · · · · · · · · · ·	

SWMU NUMBER: 20	PHOTO NUMBER	R: 67-69, and 75
NAME: Cooling Water Separator a	nd Maintenance	e Shop Sump
TYPE OF UNIT:		
PERIOD OF OPERATION:	1.00 m	e de la companya de l
PHYSICAL DESCRIPTION AND CONDITI a concrete unit with steel grati hydrocarbons prior to discharge is processed through to the larg sump is connected to the cooling	ng on top. A of the water t e API separato	to the NPDES; the oil or. The Maintenance Shop
WASTES AND/OR HAZARDOUS CONSTITU overflow water from the cooling Maintenance Shop enters the sump	tower. Probab	
RELEASE PATHWAYS: Air () Surf	ace Water ()	Subsurface Soil ()
Soil () G	roundwater ()	Subsurface Gas ()
HISTORY AND/OR EVIDENCE OF RELEA	SE (s): See	comments below.
RECOMMENDATIONS: No Further Act RFA Phase II S RFI Necessary	ampling ()	e e e e e e e e e e e e e e e e e e e
REFERENCES: Grafton and Johnson		
COMMENTS: No hazardous constitu Containment appeared to be adequ		ording to company officials.
Project Name: Arizona Chemical C City, State: Gulfport, MS	o. (Reichhold)	Date: 11/9/90
=44		

SWMU NUMBER: 21		PHOTO NUMBER:	. 65		
NAME: Area Surro	unding Drain From	Hydrochloric	e Acid and	Caustic	Tank
TYPE OF UNIT:			⁻ 2		
PERIOD OF OPERATION	N:	- ·.		er Er eg	-
PHYSICAL DESCRIPT around the 2 tank from a pipe in the north of Pond #5.	s. However, it a	ppears as the		was dra	ining
WASTES AND/OR HAZ caustic residuals			Hydrochlor or drips.	ric acid	or
RELEASE PATHWAYS:		*		Galleria -	X)
HISTORY AND/OR EV their 12,000 gall gallons of 30% hy (the large API se	on plastic acid t drochloric acid i	ank discharge nto their "wa	ed approxi aste treati	mately 2 ment pla	,500 nt"
RECOMMENDATIONS:	No Further Action RFA Phase II Sam RFI Necessary	• • •	, .		Y
REFERENCES: OPC f	iles	-		ē -	
COMMENTS:					
Project Name: Ari City, State: Gul		(Reichhold)	Dat	e: 11/9/	90

SWMU NUMBER:	22	PHOTO NUMBE	R: 76		
NAME: Mainter	nance Shop		-	ra Jelli	
TYPE OF UNIT:				*.	
PERIOD OF OPE	RATION:				
in the Mainter Spilled mater:	RIPTION AND CONDITIOn ance Shop can be se ial has an avenue to of the building and	en adjacent reach the o	to some l utside so	gallon can	S.
TIA GENERAL AND JOD	WARADDONG GOVERNMENT				
	HAZARDOUS CONSTITUE r 13, 1990, from Ben				
		- - -	-		
RELEASE PATHWA	AYS: Air () Surfa	ce Water ()	Soi1	(X)	
	Groun	dwater ()	Subsurfac	e Gas ()	ŧ
HISTORY AND/O	R EVIDENCE OF RELEAS	E (s):			
RECOMMENDATION	NS: No Further Acti RFA Phase II Sa RFI Necessary				
REFERENCES:					-
COMMENTS: The	ese cans are used wh for addition to moto	en fresh oil rs and gear	s are tak	en from dru	ms ; * *
Project Name: City, State:	Arizona Chemical Co Gulfport, MS	. (Reichhold) D	ate: 11/9/9	0
			*,7.	to j	-
=/1/1					

SWMU NUMBER: 23	PHOTO NUMBI	R: 48	
NAME: Hazardous Waste Tanks			
TYPE OF UNIT: Tanks			r
PERIOD OF OPERATION: Presently are permitted TSD units and, the			
PHYSICAL DESCRIPTION AND CONDITION of the tank farm labeled 10 concrete diked area with a concrete diked area battery (St.	0, 25, and 31. rete base. Th	These tanks are a	in a
WASTES AND/OR HAZARDOUS CONSTITU waste D001 (ignitable waste).	JENTS MANAGED:	These tanks store	≥ RCRA
RELEASE PATHWAYS: Air () Sur	face Water ()	Subsurface Soil	(X)
Soil () Gro	oundwater ()	Subsurface Gas ()
HISTORY AND/OR EVIDENCE OF RELEA	ASE (s):		
RECOMMENDATIONS: No Further Act RFA Phase II S RFI Necessary	Sampling ()		
REFERENCES: OPC files	•		
COMMENTS:			talago til og et er
Project Name: Arizona Chemical (City, State: Gulfport, MS	Co. (Reichhold	1) Date: 11/9,	/90

=44

SWMU NUMBER: 24	PHOTO NUMBE	R: 28, 60, 61,	66, 70
NAME: Ponds 1 and 2 (Aeration	Lagoons)	A CONTRACTOR OF THE PROPERTY O	ing and the second of the seco
TYPE OF UNIT:			
PERIOD OF OPERATION:			
PHYSICAL DESCRIPTION AND CONDI operating during the VSI. Con concrete dike separates both 1	crete dike surr		
WASTES AND/OR HAZARDOUS CONSTI API separator is discharged in and then wastewater moves to P to discharge to the settling b	to Pond #1 (lag ond #2 (lagoon	oon on the west on the east side	side)
RELEASE PATHWAYS: Air () Su	rface Water ()	Subsurface So	oil (X)
Soil () Gr	oundwater (X)	Subsurface Gas	()
HISTORY AND/OR EVIDENCE OF REL	EASE (s):	•	
RECOMMENDATIONS: No Further A RFA Phase II RFI Necessar	Sampling (X)		
REFERENCES: Grafton and Surra	t	•	
COMMENTS: This is their biolo are skimmed and drummed occasi monitor wells needed.			
· · · · · · · · · · · · · · · · · · ·			· ·
Project Name: Arizona Chemical City, State: Gulfport, MS	Co. (Reichhold) Date: 1	1/9/90

SWMU NUMBER: 25	PHOTO NUMBER: 66
NAME: Pipeline Leak Behind Ma	intenance Shop
TYPE OF UNIT:	
PERIOD OF OPERATION: A memo o had been occurring for approxi	f September 26, 1990, suggested the leak mately 2 months.
visible in this area and littl may be due to vehicle traffic,	TION: Some grayish soil staining was e vegetation was present (however, this as Photo 66 shows what may be a path ntly. The ground did not appear to be been fixed.
leaking pipe's fluid was water ammonia and sodium sulfate. H Green (of OPC's South Regional	TUENTS MANAGED: Grafton said that the from Pond #6 that contained small part owever, in a soil sample that Blythe Office) had Arizona run in their lab oil had a PH of 4.66 and would be considered
RELEASE PATHWAYS: Air () Su	rface Water () Subsurface Soil (X)
Soil (X) Gr	oundwater () Subsurface Gas ()
HISTORY AND/OR EVIDENCE OF REL	EASE (s): Pipeline leak memo, see Reference
RECOMMENDATIONS: No Further A RFA Phase II RFI Necessar	Sampling (X)
REFERENCES: #6	
COMMENTS:	
Project Name: Arizona Chemical City, State: Gulfport, MS	Co. (Reichhold) Date: 11/9/90

SWITC NOTIFIER. 20 FROID NOTIFIER	(: /1, /3, and /4
NAME: Large API Separator	
TYPE OF UNIT:	
TITE OF ORTE.	
DEDIOD OF ODEDATION.	
PERIOD OF OPERATION:	
PHYSICAL DESCRIPTION AND CONDITION: A concrete the floating hydrocarbons and sends them to he tank ST-10, and the wastewater that escapes be weir is pumped to Ponds 1 and 2. Currently, and evidence of spills (see Photo 73). WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:	azardous waste storage eneath the separator's there remains staining
RELEASE PATHWAYS: Air () Surface Water ()	Subsurface Soil (X)
•	
Soils (X) Groundwater (X)	Subsurface Gas ()
HISTORY AND/OR EVIDENCE OF RELEASE (s): Photothis area to have had extensive staining from correspondence also makes mention of API separe).	spills. April 1982
RECOMMENDATIONS: No Further Action () RFA Phase II Sampling (X) RFI Necessary ()	
REFERENCES: #6	· ·
	5 + -
COMMENTS:	•
COPETENTS.	
Project Name: Arizona Chemical Co. (Reichhold) City, State: Gulfport, MS	Date: 11/9/90

SWMU DATA SUMMARY
SWMU NUMBER: 27 PHOTO NUMBER: 13, 56, 61, 67, 77, 78, 80, 81, and 83
NAME: Landfill/Surface Impoundment (LF/SI)
TYPE OF UNIT: This unit is a closed landfill. However, during its operation, contaminated rain water ponded in the lower (northern) portion of the landfill. This was a chronic condition, hence the term "landfill/surface impoundment."
PERIOD OF OPERATION: Landfill was closed in 1988 in compliance with MS OPC, Hazardous Waste Division requirements.
PHYSICAL DESCRIPTION AND CONDITION: The LF/SI is a mounded area that comprises approximately 8 acres. The largest area that the landfill and surface impoundment covered together prior to closing was approximately 12 acres. It is currently covered in grass. There are small drains that protrude from the mound and drain the sediment above the LF/SI's clay cap. The areas that the landfill and the surface impoundment covered prior to closure can best be depicted in a June 26, 1984, memo in Reference 6.
WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED: Filtercake sludge buried in the landfill contained solvents.
RELEASE PATHWAYS: Air () Surface Water () Subsurface Soil (X)
Soil () Groundwater (X) Subsurface Gas ()
HISTORY AND/OR EVIDENCE OF RELEASE (s):
HISTORY: Chronic seepage of leachate into Industrial Seaway. Periodic overflow and discharge of contaminated runoff that ponded on the lower northern end of the landfill.
CURRENT STATUS: Leachate is collected and treated. See SWMU #2.
RECOMMENDATIONS: No Further Action (X) RFA Phase II Sampling () RFI Necessary ()
REFERENCES: OPC files

Project Name: Arizona Chemical Co. (Reichhold)
City, State: Gulfport, MS
=45

COMMENTS:

	DWIIO DAIA DOIMAKI	·* -
AOC NUMBER: 1	PHOTO NUMBE	R: 9 - 13
NAME: Industrial S	Seaway Embankment	
TYPE OF UNIT:	; " <u>*</u> .	
PERIOD OF OPERATIO	ON:	
in one spot on the and very steep in	ON AND CONDITION: Reddish-be embankment. The embankment places. Slight, localized on spot. White residue near	nt is covered in brush oil sheen in Seaway was
WASTES AND/OR HAZA	ARDOUS CONSTITUENTS MANAGED:	Leachate detected.
RELEASE PATHWAYS:	Air () Surface Water (X)	Soil (X)
	Groundwater ()	Subsurface Gas ()
from this area in leachate were not	DENCE OF RELEASE (s): Leathe past. Reichhold's past very effective. Methods in placing barrels along the e	cluded the use of a boon
Leachate is currer and sump (SWMU #2)	atly controlled by a groundw	1
RECOMMENDATIONS:	No Further Action () RFA Phase II Sampling (X) RFI Necessary ()	
REFERENCES: Graft	con, Surrat, and OPC files.	
COMMENTS: Poor acc	ess to embankment because o	f terrain problems.

Project Name: Arizona Chemical Co. (Reichhold) City, State: Gulfport, MS

Date: 11/9/90

AOC NUMBER: 2

PHOTO NUMBER: 19, 20, 23-26

NAME: Railroad Track Vicinity

TYPE OF UNIT:

PERIOD OF OPERATION: According to Grafton, the railroad tracks have probably been in operation since the plant opened.

PHYSICAL DESCRIPTION AND CONDITION: Stained ground under tanker car. Amber-brown resin seen between mud cracks in the sediment on the concrete slab adjacent to the tracks. A brownish-black staining exists along the retaining wall adjacent to the resinous ooze; Photo #20. An oil sheen can be seen on pooling water next to the SW corner of the loading docks and adjacent to the tracks; Photo 24. Staining on the tracks; Photo #23. Photos #23 and 24 are within 60 yards north of Photo #20 and the tanker car.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED: The raw material 2-methyl butene 2-dipentene is transported from the RR tracks to the Horton Sphere (tank). Dipentene is also unloaded from the tracks.

RELEASE PATHWAYS: Air () Surface Water (X) So

Soil (X)

Groundwater (X) Subsurface Gas ()

HISTORY AND/OR EVIDENCE OF RELEASE (s):

RECOMMENDATIONS: No Further Action (

RFA Phase II Sampling (X)

RFI Necessary (

REFERENCES: Grafton

COMMENTS:

Project Name: Arizona Chemical Co. (Reichhold)

City, State: Gulfport, MS

Date: 11/9/90

AOC NUMBER: 2 (continued)

PHOTO NUMBER:

NAME: Railroad Track Vicinity

TYPE OF UNIT:

PERIOD OF OPERATION: Since plant opened.

PHYSICAL DESCRIPTION AND CONDITION: A black-brown, cow patty shaped resinous material that is located west of the loading dock and RR tracks. The amount of this material that covers the ground can be seen in Photo #26. This material interrupts the continuity of a man-made ditch that travels north/south and is located about 40 feet upslope from the RR tracks (and about 4 feet higher than the tracks). The ditch runs parallel to the tracks. The resinous material intermittently covers an area approximately 25 feet x 5 feet. A well defined ditch originates on both sides of this material. The material is hardened and obsidian like when broken apart.

Mr. Grafton had no idea of the material origin.

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

RELEASE PATHWAYS: Air () Surface Water () Soil ()

Groundwater () Subsurface Gas ()

HISTORY AND/OR EVIDENCE OF RELEASE (s): This could be materials left over from previous clean-ups in the RR track vicinity. October 1984 correspondence in Reference 6 indicates removal and clean-up of spilled materials in this same vicinity.

RECOMMENDATIONS: No Further Action (
RFA Phase II Sampling (X
RFI Necessary (

REFERENCES:

COMMENTS:

Project Name: Arizona Chemical Co. (Reichhold)
City, State: Gulfport, MS

Date: 11/9/90

	SWITO DATA SUTTIANT	· · · · · · · · · · · · · · · · · · ·	
AOC NUMBER: 3	PHOTO NUMBER	R: 47 and 48	
NAME: Stained Ground	and Leaking Pipe Adjacer	nt to Dike of Ta	nk Farm
TYPE OF UNIT:			
PERIOD OF OPERATION:			
coming from it and is A build-up of resinous of the east side of th of tank farm. The mat	ND CONDITION: Leaking proceed directly adjacer materials on the surface tank farm immediately erial here is much like AOC #2 that interrupted	nt and east of S ce soil along th adjacent to the the resinous, h	WMU #9. e majority dike
WASTES AND/OR HAZARDOU the tank farm area.	S CONSTITUENTS MANAGED:	Resinous mater	ials from
RELEASE PATHWAYS: Air	() Surface Water ()	Soil (X)	
	Groundwater () S	Subsurface Gas	()
HISTORY AND/OR EVIDENCE	E OF RELEASE (s):		- •
	urther Action () Phase II Sampling (X) Necessary ()		
DEFEDENCEC.		-	

Date: 11/9/90

COMMENTS:

=45

Project Name: Arizona Chemical Co. (Reichhold) City, State: Gulfport, MS

AOC NUMBER: 4	PHOTO NUMBER	R: 54
NAME: Stained Soil by Dumpster	- - :	
TYPE OF UNIT:	,	
PERIOD OF OPERATION:		Ŧ
PHYSICAL DESCRIPTION AND CONDITION of the tank farm. Ground had a puare abandoned tanks which contains in the same vicinity.	ırple/amber a	appearance to it. There
WASTES AND/OR HAZARDOUS CONSTITUEN have been from a resinous material		Staining appears to
RELEASE PATHWAYS: Air () Surfac	ce Water ()	Soil (X)
Ground	lwater ()	Subsurface Gas ()
HISTORY AND/OR EVIDENCE OF RELEASE	E (s):	· . •
RECOMMENDATIONS: No Further Action RFA Phase II San RFI Necessary	• • •	
REFERENCES: Grafton	-	
COMMENTS:	;	
Project Name: Arizona Chemical Co. City, State: Gulfport, MS	. (Reichhold)	Date: 11/9/90
12.11.11.11.11		
=45		

	SWMU DA	TA SUMMAR	Y	=	
AOC NUMBER: 5		PHOTO NUM	MBER: 61,	62, 77 - 79)
NAME: Past Wastew	ater Discharge D	itch Syste	em		-
TYPE OF UNIT:	. A Linear	menors as a second		e <u>ele</u>	
PERIOD OF OPERATION	ON:			e e e e e e e e e e e e e e e e e e e	
PHYSICAL DESCRIPT impeded by 2 dike of PVC pipes can ditch. It appear water in the ditch (3 and 4) and betwoof heavy rain. From 200-250 yards.	s (Photos 61 & 7 be seen entering s as though thes h flow back west ween Ponds (3 an	8); l eart the ditch e pipes an erly to be d 4) and (then and I n on the w re present etween Por (1 and 2)	concrete. yest side of to let ponds (5 and 6 during per	A series f the ading 6) and iids
WASTES AND/OR HAZ rains, the surfac- untreated landfil of this ditch sys	e impoundment (S l (LF) runoff in	I) would d	overflow i	Lt's dike s	ending
RELEASE PATHWAYS:	Air () Surfa	ce Water ((X) Soil	L ()	
S	ediment (X) Gro	undwater (() Subsu	ırface Gas	()
HISTORY AND/OR EV	IDENCE OF RELEAS	E (s):			
RECOMMENDATIONS:	No Further Acti RFA Phase II Sa RFI Necessary	mpling ()) K))		

REFERENCES: Grafton, OPC files.

COMMENTS: According to Grafton, the NPDES effluent is discharged through a pipeline that runs from between Ponds (3 and 4) and (1 and 2) easterly and then turns northerly beneath the current ditch and discharges at the Parshall Flume.

Project Name: Arizona Chemical Co. (Reichhold) Date: 11/9/90 City, State: Gulfport, MS

=45

PHOTO NUMBER:

AOC NUMBER:

NAME: Reichhold Road Ditch	
TYPE OF UNIT:	
PERIOD OF OPERATION:	
PHYSICAL DESCRIPTION AND CONDITION: Heavily v clean water in it where water is present. Th one. The ditch is 4 feet-6 feet deep in plac but generally no deeper than 2 feet and wider was seen in the ditch by Photo #86.	e ditch is an intermittent es and up to 10 feet acros
WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:	; = :
RELEASE PATHWAYS: Air () Surface Water (X)	Soil ()
Sediment (X) Groundwater () S	ubsurface Gas ()
HISTORY AND/OR EVIDENCE OF RELEASE (s): A Re 1981, spoke of and showed pictures of a reddiditch with a PH of 11.2. Also, "the water wa front of their plant and in the ditch along to their tank car unloading area" (AOC #2) ac	sh water coming from this s only in the area in he railroad track leading
RECOMMENDATIONS: No Further Action () RFA Phase II Sampling (X) RFI Necessary ()	
REFERENCES: OPC files.	
COMMENTS:	
Project Name: Arizona Chemical Co. (Reichhold City, State: Gulfport, MS) Date: 11/9/90

**		- i		
AOC NUMBER: 7		PHOTO NUMBE	R: 83-85	4
NAME: Intermitte	nt Stream NE of	the closed l	andfill (SWMU #2	7)
TYPE OF UNIT:				
PERIOD OF OPERATI	On:	-		
PHYSICAL DESCRIPT stream, about two receives Arizona leachate was phot stream valley tha between the landf easterly along th approximately 30	hundred feet lo Chemical's NPDES ographed just be t flows north al ill and COE dred e north end of t	ng, that dra (treated) e yond the con ong the east ge spoils ar he landfill.	ins into the str ffluent. Reddis fluence of the i side of the lan ea, and runoff t This leachate	eam that ch-brown ntermittent dfill, that flows
WASTES AND/OR HAZ		NTS MANAGED:	Leachate proba	bly has
RELEASE PATHWAYS:	Air () Surfa	ce Water (X)	Soil ()	
Se	diment (X) Groun	dwater ()	Subsurface Gas	()
HISTORY AND/OR EV untreated, ponded a pipe in the nor flowed down this	runoff from the	landfill wo	uld be discharge	d through
RECOMMENDATIONS:	No Further Acti RFA Phase II Sa RFI Necessary	on () mpling (X) ()		· .
REFERENCES:				·
COMMENTS:		- ·		÷ 5
•				

Date: 11/9/90

Project Name: Arizona Chemical Co. (Reichhold) City, State: Gulfport, MS

=45

AOC NUMBER: 8	PHOTO	NUMBER:	15 and	1 53	•	
NAME: The Electric Substation	•				•	
TYPE OF UNIT:						
PERIOD OF OPERATION:		-	:			
PHYSICAL DESCRIPTION AND CONDIT behind fence just east of the A This area did not exhibit any d	irzona Cl	nemical d	rinking	, water	well.	-
WASTES AND/OR HAZARDOUS CONSTITU	HENTS MAI	NAGED:	• •	<u></u> = -		
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;						
RELEASE PATHWAYS: Air () Sur	face Wate	er ()	Soil ((X)	-	
Gro	undwater	() Sub	surface	Gas	()	
HISTORY AND/OR EVIDENCE OF RELEATION OF RELE	s tested	all tran	sforme	nts of s with	transform in the	ers
RECOMMENDATIONS: No Further Ac RFA Phase II : RFI Necessary	Sampling	(X)	÷			
REFERENCES: Grafton and Johnson	n	!				
COMMENTS:		and described to the second se				
Project Name: Arizona Chemical (City, State: Gulfport, MS	Co. (Rei	chhold)	Da	ate: 11	/9/90	
	÷					

During the February, 1980 EPA/State investigation, two samples were collected from the Reichhold facility. A water sample (RC-1) was collected next to a vertical overflow pipe in a diked area of ponded water on the north end of the landfill. The second sample (RC-2) was a sample of filter cake material that was deposited in the landfill.

- (1) RC-1 contained xylene, alkylbenzene, trimethyl-bicyclo-heptanone, trimethylcyclopentenone, phenylethanone, methylhydroxybenzeneacetic acid, dimethylbenzenemethanol, methylbenzoic acid, phenol, and 20 unidentified compounds.
- (2) RC-2 contained benzene, toluene, ethylbenzene, approximately 35,000 mg/kg of unidentified hydrocarbons (volatile), alkylbenzene, methyl phenyl ethanone, zylene, methyl-methylethenyl cyclohexane, akyl benzene, and high concentrations of aluminum and iron.

May 1982 MS Bureau of Pollution Control (BPC) sampling:

- (1) Sample from "pool of liquid on south end of drum storage area" contained chloroform, ethylbenzene, phenols, and "other probable identifications" (OPI);
- (2) Sample of "filter cake material from filter press" contained ethylbenzene and OPI;
- (3) Sample of "seepage from Industrial Canal embankment" contained 1,2 dichloroethane, benzene, toluene, ethyl benzene, and OPI;
- (4) Sample of "seepage from Industrial Canal embankment" contained phenol, napthalene, and OPI.

November 1983 CH2M Hill sampling:

- (1) Leachate sample contained napthalene, dicyclopentadiene, 1,2 dichloroethane, benzene, toluene, ethyl benzene, xylene, and phenol;
- (2) Samples of landfill solids contained benzene, toluene, ethyl benzene, xylenes, napthalene, dicyclopentadiene;
- (3) Samples of fresh filter cake contained dicyclopentadiene, benzene, toluene, and ethyl benzene.

An inorganic analysis was run in November of 1983 on samples of supernate, pond sludge, landfill solids, leachate, and the fresh filter cake. These results are included in Reference 5.

March 1984 CH2M Hill sampling:

(1) Sample of the oil phase of the leachate contained benzene, ethyl benzene, napthalene, and OPI.

Results of September 1984 CH2M Hill sampling of monitor wells:

- (1) P-2S trans-1,2-dichloroethene, trichloroethylene, benzene, tetrachloroethylene, toluene, ethyl benzene, and OPI; napthalene and OPI;
- (2) P-1S benzene, toluene, ethyl benzene, and OPI; napthalene, phenanthrene, and OPI;
- (3) W-11S benzene, toluene, ethyl benzene, and OPI; napthalene and OPI;
- (4) B-2S benzene, toluene, ethyl benzene, and OPI, napthalene and OPI;
- (5) W-9S benzene, toluene, and OPI; napthalene, bis(2 ethylhexyl) pthalate, and OPI;
- (6) B-3S benzene, toluene, ethyl benzene, and OPI; napthalene and OPI;
- (7) B-6S trans-1,2-dichloroethene, benzene, toluene, ethyl benzene and OPI; napthalene and OPI;
- (8) B-6D benzene, toluene, ethyl benzene, and OPI; napthalene and OPI;
- (9) B-5S trans-1,2-dichloroethene, trans-1,3-dichloropropene, tetrachloroethylene, toluene, ethyl benzene, and OPI; napthalene and OPI;
- (10) B-ID no volatiles; OPI;
- (11) B-1S no volatiles; bis (2-ethylhexyl) pthalate, and OPI.

High concentrations of organics in Well 3S, and significant levels of organics in Well 9S, coupled with a lack of inorganic contamination, indicated a contaminant source in the tank farm.

September 1986 Environmental Laboratories, Inc., sampling of deep monitor wells for volatile priority pollutants and napthalene:

- (1) 1D no volatiles or napthalene detected
- (2) 4D no volatiles or napthalene detected
- (3) 6D no volatiles or napthalene detected.

April 1990 National Environmental Testing, Inc. sampling of deep monitor wells for volatile and acid/base neutral compounds:

- (1) 1D no contaminants above method detection limits
- (2) 4D no contaminants above method detection limits
- (3) 6D no contaminants above method detection limits.

It should be noted that these samples were not analyzed for xylene.

The facility's monitor wells have been sampled periodically, and sometimes quarterly, since June of 1986. These samples have been analyzed for chlorides, N-ammonia-aqueous, pH, total dissolved solids, specific conductance, and total organic carbon-aqueous.

Geology/Hydrology (References 5, 9, 10, and 11)

The Airzona Chemical facility is located in southern Harrison County, in the coastal terrace deposits. These deposits are generally lenticular sands and gravels separated by clay layers, and generally are not continuous over a large area.

Flow gradients and direction in this upper zone tend to be variable, typically following surface topography and affected by surface streams. Stratigraphy of the area is site-specific.

The Citronelle Formation underlies the coastal terrace in lower Harrison County. It is composed of coarse sand, silt, gravel, and bright-colored clays. The gradient of the Citronelle Formation is 6 to 25 feet per mile, generally sloping toward the south. The use of the Citronelle Formation for municipal and industrial water supplies is limited, although a significant amount of commercial and domestic use is evident in the area. The clays of the Citronelle Formation are generally found in the lower portion of the stratum. It is not clear from available literature if the Citronelle is present below the coastal terrace deposits at the facility.

The Graham Ferry Formation underlies the Citronelle Formation and is a major water supply for the coastal area. The Graham Ferry Formation has been characterized as a 400- to 900-foot thick, near-surface unit in the coastal counties and has been identified as Pliocene in age on the basis of fossil evidence. The Graham Ferry cannot be distinguished from the next lower formation by lithological, geophysical, or hydrological means. The Graham Ferry is in contact with the deeper Miocene series.

The Miocene sequence in southern Mississippi has been subdivided into the Pascagoula Formation (youngest), the Hattiesburg Formation, and the Catahoula Sandstone (oldest), but these divisions cannot be reliably identified or traced into the subsurface. Therefore, for the purpose of this report, all the material between the Citronelle Formation (a blanket deposit of Pliocene age) or the coastal terrace deposits, and the limy Vicksburg Group of Oligocene age, is considered as the Miocene aquifer system. However, in the discussion of the aquifer of concern, an upper portion of the Miocene — the upper Graham Ferry — will be considered as not in communication with the rest of the Miocene.

The formations of the Miocene series currently provide the largest volumes of municipal and industrial water supplies in Harrison County. Most of these wells are 600 to 1200 feet deep and are screened in either the Graham Ferry or Pascagoula Formations of the Miocene. One such well is located at Arizona Chemical. The well is 745 feet deep and nominally produces 600 gallons per minute.

The source of water in all coastal aquifers is precipitation on the outcrop (recharge) areas. The base of the freshwater in the facility vicinity is about 2400 feet deep and is located in the Miocene.

An idea of the near-surface geology at the facility can be formed by observing the exposed soils on the north bank of the Industrial Seaway (Bayou Bernard Industrial Canal), located along the southern boundary of the facility. Of particular importance is the presence of a stiff, dark gray clay, about five feet thick, located between fifteen and twenty-two feet below the natural ground surface. The clay is continuous throughout the area south of the old Reichhold landfill, and appears to be intercepting groundwater infiltration and creating a perched water table. A similar marine clay has been encountered during shallow drilling at two sites along the canal approximately three miles west of the facility. The clay has been reported to be from a few feet to ten feet thick and between twelve to twenty feet below the ground surface at these two locations.

Locally, this clay layer may provide a limited amount of confinement for downward migration of contaminants. However, the presence of a significant downward-driving force is evidenced by the head differences at wells #1 and #6, making the local aquitard beneath the facility susceptible to contaminant penetration.

Regionally, there exists a significant amount of hydrologic connection between the aquifers of the coastal terrace deposits and the underlying shallow aquifers. Two cross sections (A-A' and B-B'), based on geophysical logs of wells in the vicinity of Arizona Chemical, indicate a lack of continuity of the above mentioned clay layer across the three-mile radius.

Additional evidence that the water table aquifer is in communication with the aquifer below this shallow clay layer is the presence of ethyl benzene and xylene isomers detected in August, 1984 sampling of the deep monitor well #6D.

The clayey aquitard becomes very sandy and/or very thin on the NE side of the facility, as evidenced in the borehole description of well #10s. Apparently, groundwater beneath the closed landfill migrates to the south along the underlying aquitard and is collected in the groundwater interceptor trench. However, conductivity surveys have suggested that a slight groundwater divide exists near the northern edge of the old landfill, with groundwater north of the divide flowing north. Benzene, toluene, and ethyl benzene have been found north of the groundwater divide in a 1984 sampling of shallow monitor well #11S.

A clay layer can be delineated on geophysical well log # M18, between the depths of 239 and 256 feet. This clay layer, which is thinnest at this (M18) location, may be the first truly confining continuous layer within the three-mile radius. (The reader can refer to the EPA Hazard Ranking System guidance manual for guidance concerning confining layers.) Evidence (e.g., significant hydraulic head differences between wells at differing depths [Reference 11]) suggests that there is a vertical hydraulic impediment between some of the deeper aquifers in the region.

The aquifer of concern (AOC) is the "shallow aquifer". It is composed of coastal terrace deposits, Citronelle, and the upper Graham Ferry in the three-mile radius of the facility. It is delineated as all of the interconnected aquifer-quality strata from the surface to about 239 feet below land surface. According to cross sections A-A' and B-B', there is no continuously confining unit between the surface and 239 feet (as seen on geophysical well log #MI8) within a three-mile radius of the facility. A local, semi-confining aquitard (mentioned in previous facility reports) becomes very thin and sandy at the northeast end of the facility and the monitor well #10s location. Therefore, for the purposes of this report, all the aquifer units between the surface and 239 feet are considered as hydraulically connected. The confining clay unit at the base of the shallow aquifer, i.e., between about 239 and 256 feet below the facility, has a permeability of about 1 X 10⁻⁶ cm/sec.

The strata of the shallow aquifer are composed of thick and thin sands with interbedded clays and silts. The water level in the water table aquifer is about 5 feet below land surface. According to well boring data from the facility monitor wells, the unsaturated zone below the facility consists of a gray to tan, fine grained, clayey sand. The permeability of this zone is estimated to be 1×10^{-4} cm/sec.

There are no public water wells in the AOC. There are about 83 home wells in the AOC within the three-mile radius. These wells serve a population of about 315 people. According to the U.S.G.S. WATSTORE database, there are 11 irrigation wells within the three-mile radius, but there is no information in the Mississippi Office of Land and Water Resources' files that indicate how many acres are irrigated by these wells.

The many water bodies in the vicinity of the facility may provide formidable barriers to transport of contaminants to shallow home wells. Some of the contaminated shallow groundwater is being recovered in the groundwater interceptor trench along the southern boundary of the facility. The Industrial Seaway also acts, to some extent, as a barrier to, and receptor of, contaminant transport. Big Lake, wetlands, bayous, and ditches east and north of the facility may also act as barriers and receptors for some groundwater contaminants. However, there is a possibility that contaminant transport via groundwater has an unimpeded avenue to the west/northwest, toward the closest (off-site) shallow well (USGS well #L294, a home well belonging to Louis Crawford; the top of the screened interval of the well is 190 feet below land surface).

The Deeper Aquifer (1, 5, 9, 10, 13 and 16)

The aquifer units below the AOC cannot be delineated into separate aquifers; so, for the purposes of this report, they are considered as hydraulically connected. The deeper aquifer is made up of all the aquifers below about 256 feet (see geophysical well log #M18). The elevation of the facility and the surrounding three-mile radius is very similar to the elevation shown on log #M18, so, in the threemile radius, the "deeper aquifer" begins at about 256 feet, depending upon the thickening or thinning of the confining clay layer. According to cross sections A-A' and B-B', there are no continuously confining layers within the deeper aguifer that can be correlated across the three-mile radius. (At least no confining layers can be discerned from these cross sections.) Below the depths depicted on the well logs of these cross sections, down to the base of the fresh water, there may possibly be a confining layer. However, this layer, if present, would not be of any significance, since all the public wells within the three-mile radius are screened in shallower units. Again, all of the aquifer units in the deeper Miocene (greater than 256 feet) are considered to be in communication.

The strata of the deeper aquifer are composed of thick and thin sands with interbedded silts, clays and shales. Individual formations within the deeper aquifer include lower Graham Ferry sediments, the Pascagoula, the Hattiesburg, and the Catahoula, but, as previously stated, these divisions cannot be reliably identified or traced into the subsurface.

There are 21 public wells in the deeper aquifer within a three-mile radius of the facility. These wells service a total of 25,961 connections and are screened between 488 and 840 feet. There are also about 171 home wells in the deeper aquifer within the three-mile radius. The total population served by the deeper aquifer is 99,302 people. According to the U.S.G.S. WATSTORE database, there are also 6 irrigation wells within the deeper aquifer. There was no information in the Mississippi Office of Land and Water Resources' files concerning the number of irrigated by these wells.

Arizona Chemical obtains drinking water from an on-site well screened in the deeper aquifer. The top of the screened interval of this well is 685 feet below land surface.

Precipitation (Reference 13)

Harrison County has a humid, subtropical climate influenced by the Gulf of Mexico. The normal annual precipitation is approximately 60 inches. The mean annual lake evaporation for the area is approximately 47.5 inches. The net annual precipitation of the area is approximately 12.5 inches. The one-year, 24-hour rainfall is approximately 4.8 inches

Surface Water (References 1, 2, 5, 6, 8, and 13)

Most stormwater runoff is reported to be channeled through a series of drains and sumps from the process areas, tank farm, and a portion of the southwest side of the facility, into the large API separator, then into Ponds #1 and #2, and then into Ponds #3 and #4, before being discharged through the NPDES outfall on the northeast side of the facility. Water in Pond #5 enters Pond #6 and, after treatment, is also discharged through the NPDES outfall. The water from the cooling water separator is discharged directly to the NPDES outfall.

Several potential stormwater runoff pathways exist. One of these pathways drains the northwest and north sides of the facility, where the slight, northerly sloping terrain north of the process areas, warehouse, office/lab, and fire pond adjoins the Reichhold Road ditch. The ditch then runs easterly across the entire northern perimeter of the facility.

The stabilized and mounded landfill provides three routes for surface runoff:

- (1) From the south end, runoff flows to the south directly across the groundwater interceptor trench, down the embankment of the Industrial Seaway, and into the Seaway.
- (2) from the east side, between the landfill and the COE dredge spoils area, runoff flows to the north where it follows the path of an intermittent stream (AOC #7). Some drainage from the north end of the landfill probably drains to AOC #7, also.
- (3) On the west side, between the landfill and the facility ponds, runoff flows to the north and enters a ditch that, in years past, received the NPDES effluent (the NPDES effluent is now piped to the Parshall Flume). It is unclear how well this ditch drains. Two dikes seem to impede flow and cause ponding to the west of the ditch, between the facility ponds.

All water that flows through the NPDES outfall, through the Reichhold Road Ditch on the facility's west side, or through the intermittent stream (AOC #7) discussed in the SWMU data summary, discharges on the northeast end of the facility into an unnamed tributary which flows into Big Lake.

According to Ben Grafton (plant manager), the Industrial Seaway is used for recreational fishing and water skiing.

Sensitive Environments (References 1, 2, 5, 6, 13, and 15)

According to the U.S. Fish and Wildlife Service, there are no national wildlife refuges or critical habitats of federally endangered species within one mile of the facility along the surface water migration pathway.

There are coastal wetlands within 250 feet of the previously discussed surface water migration pathways. These wetlands have, historically, received numerous discharges of untreated, ponded water from the old landfill. In the past, this untreated water would overflow during periods of heavy rain. The water, predominantly runoff from the landfill, would discharge through an open, 12-inch diameter pipe that was set in a dike. A number of breaches in the dike caused similar discharges to the immediate stream valleys on the northeast end of the landfill.

On another occasion, a reddish water with a pH of 11.2 was discharged from the Reichhold Road Ditch into the unnamed tributary of Big Lake. These spills and discharges have, historically, entered the coastal wetlands northeast of the facility.

Recommendations

The MS OPC recommends that confirmatory sampling be conducted at certain SWMUs and AOCs identified in Table 1 of this report.

REFERENCES

- 1. Memorandums, Photographs and Notes Related to the October 30th and 31st, 1990, Visual Site Inspection of the Arizona Chemical Company, Gulfport Facility, by Mississippi Office of Pollution Control's Chris Bowen and Gail Macalusa.
- 2. Composite Topographic Map of the Arizona Chemical Company's Gulfport Facility on a 1:24,000 Scale: Prepared from Gulfport North and Biloxi 7.5 Minute Series Topographic Quadrangles, U.S. Geological Survey, Photorevised in 1985 and in 1970 and 1976 Respectively.
- 3. Printout and Plot of Well Locations from the U.S.G.S. WATSTORE Database of all Wells Within an Approximate Three- and Four-Mile Radius of Arizona Chemical Company's Gulfport Facility. Printout of All Wells Within a Three- and Four-Mile Radius of the Arizona Chemical Company's Gulfport Facility, Generated by the Office of Land and Water Resources from the U.S.G.S. Database.
- 4. Selected Information from the Mississippi Office of Pollution Control, Underground Storage Tank Files.
- 5. Selected Information from the Mississippi Office of Pollution Control, RCRA Hazardous Waste Files.
- 6. Selected Information from the Mississippi Office of Pollution Control, Industrial Wastewater Files.
- 7. Selected Information from the Mississippi Office of Pollution Control, Air Files.
- 8. Selected Information from the Mississippi Office of Pollution Control, CERCLA Files.
- 9. Water-Resources Overview of the Mississippi Gulf Coast Area, U.S. Geological Survey, Open-File Report 85-94, 1985.
- 10. Geophysical Logs of Water Wells Near the Arizona Chemical Company Facility, Gulfport, Mississippi, File #'s Ll, L7, Ll1, M1, M2, M12, M13, M18, M49 and M57, Mississippi Office of Geology.
- 11. The Ground-Water Resources of Mississippi, U.S. Geological Survey, Water-Supply Paper 576, 1928.
- 12. Information on Public Water Supply Wells in Harrison County, Mississippi, from the Water Supply Division, Mississippi State Department of Health.
- 13. Environmental Protection Agency, Hazard Ranking System (HRS) Manual.

- 14. Integrated Risk Information System (IRIS).
- 15. U.S. Fish and Wildlife Service, Jackson Office, Mobile Map #22, and Species List by County.
- 16. Selected Information from the Mississippi Office of Land and Water Resources, Surface Water Files.



STATE OF MISSISSIPP

DEPARTMENT OF ENVIRONMENTAL QU

RAY MABUS

February 5, 1991

ed to forh for

Mr. Brian Farrier Site Investigation and Support Branch Waste Management Division U.S. EPA - Region IV 345 Courtland Street, N.E. Atlanta, GA 30365

Re: Modified Preliminary Assessment

Arizona Chemical Company

MSD001661719

Gulfport, MS

KEICHOLD CHENICALS

Dear Brian:

Enclosed are two copies, and documentation, of the above referenced report. Please give one copy, including the documentation, to Beverly (Foster) Williams, Waste Engineering Section, Waste Management Division.

This submittal completes our preremedial commitment for calendar year I have enjoyed working with you this past year.

Please contact me if you have any questions.

Sincerely,

Jim Hardage

CERCLA Section

JH: mes4

Enclosure

cc: Beverly Williams

HAZARDOUS WASTE SITE INVESTIGATION REICHHOLD CHEMICAL COMPANY GULFPORT, MISSISSIPPI



ENVIRONMENTAL PROTECTION AGENCY SURVEILLANCE AND ANALYSIS DIVISION ATHENS, GEORGIA

HAZARDOUS WASTE SITE INVESTIGATION REICHHOLD CHEMICAL COMPANY GULFPORT, MISSISIPPI

INTRODUCTION

Messrs. William R. Davis and Shane Hitchcock, US-EPA, Water Surveillance Branch and Jim Hardage, Mississippi, Division of Solid Waste Management conducted an investigation of the hazardous waste site associated with the Reichhold Chemical Company plant at Gulfport, Mississippi, on February 6, 1980.

The investigation was requested by the Air & Hazardous Waste Division to determine if the site, which had been identified by the Eckhardt Subcommittee, presented a potential problem.

The investigation team met with Mr. O. U. Thomas, Plant Manager, who answered the questions on the Potential Hazardous Waste Site, Site Inspection Form, which included a history of the development and use of the landfill. A company representative was provided to assist in the site investigation.

SITE LOCATION AND DESCRIPTION

The disposal site is located adjacent to and east of the chemical complex and covers an area of approximately 12 acres. Filter cake material consisting of catalytic salts and associated solvents, solid resins from the manufacturing processes, and general trash consisting of paper and wood have been placed in the landfill by Reichhold. The landfill is bordered on the south by Big Canal and by marshy areas on the north and east. The area has been diked on three sides by spoil from past dredging operations and is enclosed on the south by waste from the plant. (See Figure 1 for map of site.) Standing water has accumulated in the lower area of the site through run-off and seepage from the fill. A stand-pipe and drainline have been installed in the lower dike and water was flowing from the diked area during the investigation. (See attached photographs for a pictorial description of the site). The landfill has been graded and is covered with a mixture of waste material and sand/organic type soil, however, solid resins were scattered over the surface.

RESULTS AND DISCUSSION

Two samples were collected, RC-1, a water sample from the discharge point of the pipe draining the diked area, and RC-2, a waste sample collected from discarded filter material which was deposited on the site. All analytical data are attached to this report

The water sample (RC-1) contained a high concentration of COD (767 mg/1) which is indicative of organic contamination well above natural occurring organics associated with marshy soils. This was further substantiated by the identification of some 15 specific organic compounds and 20 unidentified compounds. The major organic compounds identified were xylene 24 µg/1, C₃ Alkylbenzene (2 isomers) 12 µg/1, trimethyl-bicyclo-heptanone 70 µg/1, trimethylcyclopentenone 140 µg/1, phenylethanone 80 µg/1, methylhydroxybenzeneacetic acid 15 µg/1, dimethylbenzenemethanol 460 µg/1, methylbenzoic acid 87 µg/1 and 20 unidentified compounds ranging from 10 to 100 µg/1. Phenol was detected at 89 µg/1. No pesticides or PCBs were detected. Metal concentrations were not abnormal for water draining from marshy areas.

The solid sample (RC-2), which was filter cake material, consists of catalytic salts. The company reported that some one-million pounds are deposited in the landfill site each year. The material has a very low solubility rate and has somvents associated with it. Analytical data show that several volatile organics including benzene 38 mg/kg, toluene 530 mg/kg and ethylbenzene-570 mg/kg were present. All of these compounds are on the NRDC list of priority pollutants. Approximately 35,000 mg/kg of unidentified hydrocarbons (volatile) were detected in the waste sample. Only 9 extractable organic compounds were detected in the waste sample. The major compounds were C₃ alkylbenzene (2 isomers) 300 mg/kg, methylphenyl ethanone 250 mg/kg, zylene (2 isomers) 3,000 mg/kg, methyl-methylethenyl cyclohexane 2500 mg/kg and C₄ akyl benzene 1700 mg/kg. High concentrations of aluminum 60,096 mg/kg and fron 1,827 mg/kg were detected in the waste.

The solvent type volatile organics associated with the waste material are not being partitioned into the water as evidenced by the analytical data. Only a trace of benzene (less than 5 μ g/1) was detected in the water phase. The high concentration of zylene (3,000 mg/kg) in the waste was detected in the water sample (24 μ g/1).

Based on the limited sampling, the water does contain a substantial number of organic compounds associated with the waste material being deposited on the landfill, but does not appear to be highly concentrated.

STUDY METHODOLOGY

The water samples were collected by the grab technique into standard US-EPA Region IV solvent rinsed quart jars with Teflon lids for extractable organics and oven-dryed vials for volatile organics (VOA). The VOA samples were collected to overflowing, without air bubbles. Teflon septums were used as liners for the lids.

Acid rinsed pint glass bottles were used for metal samples with preservatives added at the mobile laboratory.

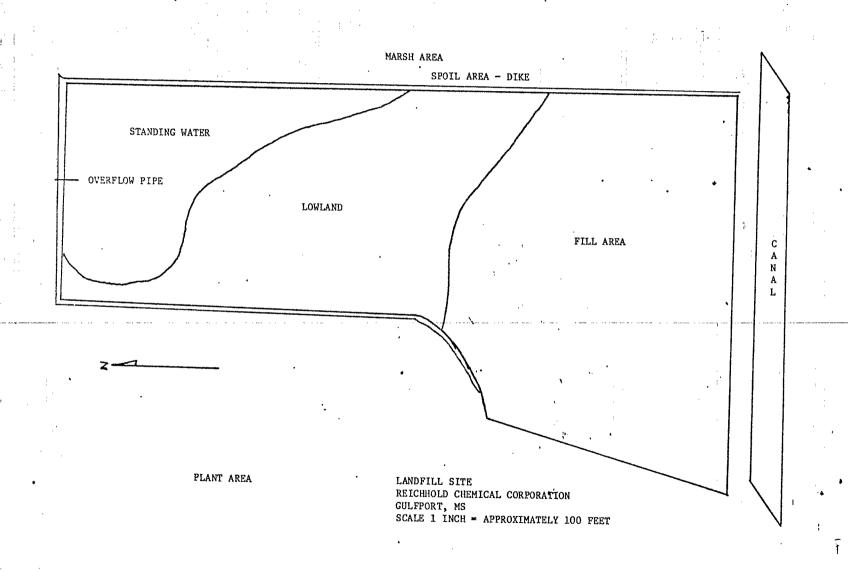
Chain-of-custody was maintained on all samples. Each container was tagged, placed on ice, maintained at 4°C, and stored in locked vehicles until returned to the laboratory in Athens, Georgia.

Analyses of samples were performed as follows:

- 1. Extractable Organics Base/neutral and acid extraction analyzed by GC/MS.
- 2. Volatile Organics Purge and trap method analyzed by GC/MS.
- 3. Pesticides, PCBs and Chlorinated Compounds Pesticides extraction analyzed on GC/EC with two columns and in selected cases GC/MS confirmation. This method provides high sensitivity for selected halogenated organic compounds for which reference standards are available.

Solid Samples were extracted with a Polytron extraction unit.

Metals were acid digested and analyzed by Inductively Coupled Argon Plasma.



EPA, SAD, RGN. IV Athens, GA 6/79

. PROJECT Reichold Chemical HWS

CHEMIST E. W. Loy, Jr.

REC'D. 2/6/80 COMPL'D. 3/27/80

	200 0200		
SAD NO.	80C 0288 RC-1 End of		
SOURCE & STATION	Overflow Drainage	•	
DATE/TIME .	2/6/80 @ 1530		
Compounds on NRDC List of Priority Pollutants	Concentration ug/L	Concentration	Concentration
17. bis(chloromethyl) ether	: NA	NA	NA
61. N-nitrosodimethylamine	. NA	NA	NA
25. 1,2-dichlorobenzene 26. 1,3-dichlorobenzene	10U 10U		
27. 1,4-dichlorobenzene	100		
18. bis(2-chloroethyl) ether	100 ·		
12. hexachloroethane 42. bis(2-chloroisopropyl) ether	10U		
63. N-nitrosodi-n-propylamine	400		
56. nitrobenzene	100		
52. hexachlorobutadiene	100		
8. 1,2,4-trichlorobenzene 55. naphthalene	10U 10U		
43. bis(2-chloroethoxy) methane	100		
54. isophorone .	400		
53. hexachlorocyclopentadiene	100		
20. 2-chloronaphthalene 77. acenaphthylene	100		
1. acenaphthene	100		
71. dimethyl phthalate	: 100		
35. 2,4-dinitrotoluene	100		<u> </u>
36. 2,6-dinitrotoluene 40. 4-chlorophenyl phenyl ether	100		
80. fluorene	100		
70. diethyl phthalate	100		
37. 1,2-diphenylhydrazine 2/ 62. N-nitrosodiphenylamine3/	100		
9. hexachlorobenzene	100		-
41. 4-bromophenyl phenyl ether	100		
81. phenanthrene 4/			
78. anthracene4/ 68. di-n-butyl phthalate	100		
39. fluoranthene	100		
84. pyrene	100		
67. butyl benzyl phthalate	100		
5. benzidine 66. bis(2-ethylhexyl) phthalate	40U		
76. chrysene 5/	100		1:
72. 1,2-benzanthracene 2/	: 10u		
28. 3,3'-dichlorobenzidine	. 10U		
69. di-n-octyl phthalate 74. 3,4-benzofluoranthene 6/	100		
75. 11,12-benzofluoranthene6/	- 10U	/*\	
73 3 /	100		
83. ·indeno (1,2,3-cd) pyrene 82. 1,2,5,6-dibenzanthracene	100	· · · · · · · · · · · · · · · · · · ·	_
79. 1.12-benzoperylene	10U 10U		-
24. 2-chlorophenol	1000		
57. 2-nitrophenol	. 100U		
65a. phenol (GC/MS)	1000		
34. 2,4-dimethylphenol 31. 2,4-dichlorophenol	100U 100U		
21. 2,4,6-trichlorophenol	1900		
22. parachlorometa cresol	1000		
59. 2,4-dinitrophenol	8000		
60. 4,6-dinitro-o-cresol 64. pentachlorophenol	1000		
58. 4-nitrophenol •	2000		
NA - Not analyzed.		5/	or 1,2-benzanthra

K - Actual value is known to be less than value given.

K - Actual value is known to be greater than value given.
L - Actual value is known to be greater than value given. U - Material was analyzed for but not detected. The number is the Minimum Detection Limit

- Tentative identification.

and/or azobenzene.

- and/or diphenylamine.

11,12-benzofluorantheme.

WATER DATA REPORTING SHEET EXTRACTABLE ORGANIC ANALYSIS

EPA, SAD, RGN. IV Athens, GA 6/79

PROJECT Reichold Chemical HWS CH	iemist_	E. W. Loy, Jr. RE	C'D. 2/6/80	COMPL'D. 3/27
Gulfport, Mississippi	<u> </u>		* ***	
SAD NO.		80C 0288		
SOURCE & STATION				• • •
DATE/TIME	<u> </u>			
COMPOUND		Estimated Concentration ug/L	Estimated Concentration	Estimated Concentration
Xylene-1/		24J		
C ₃ Alkylbenzene ¹ /(2 isomers)	ļ.	12J	:	
C4 Alkylbenzene (2 isomers)	<u>!</u>	10K		<u> </u>
Methylpentanedione 1/		10K		
Methylstyrene 1/	<u> </u>	10K		
Trimethylbicycloheptanone 1/		701 .		
Trimethylcyclopentenone1/	<u> </u>	140J		
Phenylethanone1/	<u> </u>	801		
Methylhydroxybenzeneacetic Acid1/	. ! 	15J -	•	
Dimethylbenzenemethano11/	ļ	4603		
Methylbenzoic Acid1/	<u> </u>	87J	<u> </u>	
Dimethylbenzoic Acid-1/	<u> </u>	140J		
		<u> </u>		
The chromatogram indicated the present	ce of a	petroleum type pro	duct .	
20 Unidentified Compounds		10J-100J		
	•			
	•		•	·
				•
	•			
			# * **********************************	

No other organic compounds detected with an estimated minimum detection limit of .800 ug/L

C: C: 文字 大型 2014年 501 中华 501

J - Estimated value. .

K - Actual value is known to be less than value given.

L - Actual value is known to be greater than value given.

U - Material was analyzed for but not detected. The number is the Minimum Detection Limit NA - Not analyzed.

^{1/-} Tentative identification.

EXTRACTABLE ORGANIC ANALYSIS

ÉPA, SAD, RGN. IV Athens, GA 6/79

5/- Chrysene and/or 1,2-benzanthrau 6/- 3,4-benzofluoranthene and/or 11,12-benzofluoranthene.

	Cul facult MC	CHEMIST E. W. Loy, J		COMPL D. 4-3-80
The state of the s			•	
	SAD NO.	80C 0289	-	
	SOURCE & STATION	RC-2 From Clay at Dump		
	DATE/TIME .	2-6-80 @ 1615	•	
	Compounds on NRDC List of Priority Pollutants	Concentration mg/Kg	Concentration	Concentration
	17. bis(chloromethyl) ether	NA NA	NA NA	NA NA
North Committee of the	61. N-nitrosodimethylamine	NA ·	NA	NA NA
	23. 1,2-dichiotobenzene	1000		
	26. 1,3-dichlorobenzene 27. 1,4-dichlorobenzene	100U	 	
	18. bis(2-chloroethyl) ether	1000	<u> </u>	 · · · · · · · · · · · · · · · · · · ·
	12. hexachloroethane	1000		
	42. bis(2-chloroisopropy1) ether	100U		
	63. N-nitrosodi-n-propylamine 56. nitrobenzene	200U 100U	 	<u> </u>
	56. nitrobenzene 52. hexachlorobutadiene	1000	 	
	8. 1,2,4-trichlorobenzene	1000	,	
	55. naphthalene	100K -		
	43. bis(2-chloroethoxy) methane 54. isophorone	100U 200Ú	 	<u> </u>
	53. hexachlorocyclopentadiene	1000		
	20. 2-chloronaphthalene	1000		
The first transfer of the state	77. acenaphthylene	1000		
چىر ئايىلىنى ئىلىدى يىلىدى ئىلىنىدىيى ئىلىن	1. acenaphthene	100U 100U		
JA STATE OF THE ST	71. dimethyl phthalate 35. 2.4-dimitrotoluene	1000	 	<u> </u>
· · · · · · · · · · · · · · · · · · ·	36. 2,6-dinitrotoluene	1000		
	40. 4-chlorophenyl phenyl ether	1000		
	80. fluorene 70. diethyl phthalate	1000		
	37. 1,2-diphenylhydrazine Z/	100 U	 	
	62. N-nitrosodiphenylamine3/	1000		
	J. HERBCHIOLOGIECHE	1000		
	41. 4-bromophenyl phenyl ether	1000		
	81. phenanthrene 4/78. anthracene 4/7	100v		• •• •• •
	68. di-n-butyl phthalate	1000		
	39. fluoranthene	1000		
	84. pyrene	1000	 	<u> </u>
	67. butyl benzyl phthalate 5. benzidine	100U 200U		
	.66. bis(2-ethylhexyl) phthalate	1000		
	76. chrysene 5/			
	72. 1,2-benzanthracene 5/	1000		
	28. 3,3'-dichlorobenzidine 69. di-n-octyl phthalate	100U 100U	 	
The state of the s	74. 3,4-benzofluoranthene 6/	1000		- L.
	75. 11,12-benzofluoranthene6/	- 100U		
	73. 3,4-benzopyrene	1000		
The state of the s	83. •indeno (1,2,3-cd) pyrene 82. 1,2,5,6-dibenzanthracene	100U 100U		
	79. 1,12-benzoperylene	1000		
المنظمة المنظمة	24. 2-chlorophenol	1000		
Marie Marie Control of the Control o	57. 2-nitrophenol	1000		ļ
	65: phenol (GC/MS)	1000	 	
	34. 2,4-dimethylphenol	100U 100U	 	
	21. 2,4,6-trichlorophenol	1000		
	22. parachlorometa cresol	100U		
الروائع المواقع في المواقع المواقع المواقع المواقع المواقع المواقع المواقع المواقع المواقع المواقع المواقع الم المواقع المواق	59. 2,4-dinitrophenol	8000	<u> </u>	
	60. 4,6-dinitro-o-cresol	1000	 	
San Control of the Co	58. 4-nitrophenol	100 U 200 U	·	
and the contraction of the contr				+

NA - Not analyzed. J - Estimated value.

K - Actual value is known to be less than value given.

L - Actual value is known to be greater than value given.

White the Minimum Detection Limit.

DATA REPORTING SHEET EXTRACTABLE ORGANIC ANALYSIS

EPA, SAD, RGN. IV Athens, GA 6/79

Culfport, MS

CHEMIST E. W. Loy, Jr.

REC'D. 2-6-80 COMPL'D. 4-3-80

Garrott, NS			
: SAD NO.	80C 0289		
SOURCE & STATION	RC-2 From Clay at Dump	-	4. 5 <u>. 5.</u>
DATE/TIME	2-6-80 @ 1615		
Compounds on NRDC List of Priority Pollutants	Concentration mg/Kg	Concentration	Concentration
17. bis(chloromethyl) ether	: NA	NA	NA
61. N-nitrosodimethylamine	NA ·	NA NA	NA NA
25. 1,2-dichlorobenzene	1000		-
26. 1,3-dichlorobenzene	1000		<u> </u>
27. 1,4-dichlorobenzene 18. bis(2-chloroethyl) ether	1000	<u> </u>	<u> </u>
12. hexachloroethane	1000	 	
42. bis(2-chloroisopropyl) ether	1000		
63. N-nitrosodi-n-propylamine	200U		
56. nitrobenzene	100U .		
52. hexachlorobutadiene	1000		
8. 1,2,4-trichlorobenzene	1000		
55. naphthalene 43. bis(2-chloroethoxy) methane	100K -	 	
54. isophorone	2000	 	
43. bis(2-chloroethoxy) methane 54. isophorone 53. hexachlorocyclopentadiene 20. 2-chloronaphthalene	1000		
20. 2-chloronaphthalene	100U	 	
. 77. acenaphthylene	100บ		
- l. acenaphthene	100บ		
71. dimethyl phthalate	100U		<u> </u>
35. 2,4-dimitrotoluene	100U		
71. dimethyl phthalate 35. 2,4-dimitrotoluene 36. 2,6-dimitrotoluene	1000 ملم	 	
40. 4-chlorophenyl phenyl ether 80. fluorene	1000	<u> </u>	
80. fluorene 70. diethyl phthalate	100U	 	
37. 1,2-diphenylhydrazine 2/	1000		
62. N-nitrosodiphenylamine3/	1000		
9. hexachlorobenzene	1000-		
40. 4-chlorophenyl phenyl ether 80. fluorene 70. diethyl phthalate 37. 1,2-diphenylhydrazine 2/ 62. N-nitrosodiphenylamine3/ 9. hexachlorobenzene 41. 4-bromophenyl phenyl ether 81. phenanthrene4/ 78. anthracene4/ 68. di-n-butyl phthalate 39. fluoranthene 84. pyrene 67. butyl benzyl phthalate 5. benzidine 66. bis(2-ethylhexyl) phthalate	1000		
81. phenanthrene			
3 78. anthracene4/	100U	<u> </u>	·
68. di-n-butyl phthalate	100U	 	
39. fluoranthene 384. pyrene	100U 100U	}	
4 84. pyrene 67. butyl benzyl phthalate	1000	 	
5. benzidine	2000	 	
\$.66. bis(2-ethylhexyl) phthalate	10011		
3.76. chrysene 5/			
76. chrysene 5/ 72. 1,2-benzanthracene 5/	100U		
. Zo. 3,5 -dichiolopenzidine	1000		
69. di-n-octyl phthalate	100U		
74. 3,4-benzofluoranthene <u>6/</u> 75. 11,12-benzofluoranthene <u>6/</u>	- 1001		
73. 3,4-benzopyrene	100U		
83. ·indeno (1,2,3-cd) pyrene	1000		
82. 1,2,5,6-dibenzanthracene	100U	 	
74. 3,4-benzofluoranthene 6/ 75. 11,12-benzofluoranthene6/ 73. 3,4-benzopyrene 83. indeno (1,2,3-cd) pyrene 82. 1,2,5,6-dibenzanthracene 79. 1,12-benzoperylene 24. 2-chlorophenol 57. 2-nitrophenol 651. phenol (GC/MS) 34. 2,4-dimethylphenol 31. 2,4-dichlorophenol 22. parachlorometa cresol 59. 2,4-dinitrophenol 60. 4,6-dinitro-o-cresol 64. pentachlorophenol 58. 4-nitrophenol	1000		
24. 2-chlorophenol	: 100U		
57. 2-nitrophenol	1000	<u> </u>	
651. phenol (GC/MS)	1000	 	
34. 2,4-dimethylphenol	1000	 	
31. 2,4-dichlorophenol 21. 2,4,6-trichlorophenol	100U 100U		
22. parachlorometa cresol	1000	 	
59. 2,4-dinitrophenol	800U	 	
60. 4,6-dinitro-o-cresol	1000	1	
64. pentachlorophenol	10011		
58. 4-nitrophenol ·	2000		
A 7			· ·

5/- Chrysene and/or 1,2-benzanthrac 6/- 3,4-benzofluoranthene and/or

NA - Not analyzed. J - Estimated value.

K - Actual value is known to be less than value given.

11,12-benzofluoranthene.

L - Actual value is known to be greater than value given.

U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.

DATA REPORTING SHEET EXTRACTABLE ORGANIC ANALYSIS - WASTE EPA, SAD, RCN. IV Athens, GA 6/79

	E. W. Loy, Jr. R	EC'D. 2-6-80	COMPL'D. 4-3.
Gulfport, MS.		A	and the second s
SAD NO.	80C 0289		
SOURCE & STATION			• • •
DATE/TIME			
СОМРОИИД	Estimated Concentration mg/Kg	Estimated Concentration	Estimated Concentration
Zylene (2 isomers) 1/	30001		
C ₃ Alkyl Benzene (2 isomers) 1/	300J		
Methyl phenyl ethanone 1/	250J		
Methyl - methyl ethenyl cyclohexane 1/	2500J		
. C ₄ Alkyl Benzene 1/	1700J		
C ₅ Alkyl Benzene (2 isomers) 1/	100K	<u> </u>	<u> </u>
Trimethyl-Bicyclo-Heptanone 1/	100K	<u> </u>	
Dihydro-Trimethyl phenyl Indene 1/	100к	ļ	<u> </u>
			<u> </u>
	<u> : </u>		-
			J
			<u> </u>
		<u> </u>	
			<u> </u>
		<u> </u>	<u> </u>
•			
			<u> </u>
		•	
		,	
		1	1
		·· · · · · · · · · · · · · · · · · · ·	<u> </u>

No other organic compounds detected with an estimated minimum detection limit of .100 mg/Kg

J - Estimated value.

K - Actual value is known to be less than value given.

L - Actual value is known to be greater than value given.

[·] U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.

NA - Not analyzed.

^{1/-} Tentative identification.

DATA REPORTER

PESTIGIDES/PCB'S, AND OTHER CHLORINATED COMPOUNDS

•	PROJECT Reichhold Chemical HWS CH	EMIST E. W. Lo	y, Jr. REC'	D. 2-26-80 COMP	L'D. 3-31-80
ing a great state of the state	Gulfport, MS.			<u>6 1912.</u>	
	R	ESULTS ON WET W	EIGHT BASIS		•
· 是在电影	SAD NO. 80C	0289			
og galledging valgar film en litter far til still i til		RC-2 From		• (',	
	SOURCE & STATION	Clay at		•	
The Contract of the Contract o	SOURCE & STRILLON	dumpsite.	•		
			-	_	
•	n ma /mrun		<u> </u>		
	DATE/TIME	2-6-80 @ 1615	1		
	COMPOUND	Concentra- tion mg/kg	Concentra- tion mg/kg	Concentra- tion mg/kg	Concentra- tion mg/kg
		E2511 - 37 - 6	CION -8, -8	LIUI878	CION ESTAS
	89. aldrin 2/	0.10		<u> </u>	
	90. dieldrin 2/	0.20	ļ		
	91. chlordane (tech. mixture & metabolites) 2/	6ช			
	92. 4,4'-DDT (p,p'-DDT)2/	0,90			· · ·
	93. 4,4'-DDE (p,p'-DDE)2/	0,90			
	94. 4,4'-DDD (p,p'-TDE)2/	0.90	<u> </u>		ļ
	95. a-endosulfan-Alpha 2/ 96. b-endosulfan-Beta 2/	0.2U 1U	 	 	
	97. endosulfan sulfate 2/	10			
	98. endrin 2/	0.20			
Carlos TVE de la Marie de la M	99. endrin aldehyde 2/	14	ļ		
· · · · · · · · · · · · · · · · · · ·	100. heptachlor 2/ 101. heptachlor epoxide 2/	0.1U 0.1U		 	-
Market Ma	102. a-BHC-Alpha 2/	0.10			
	103. · b-внс-вета 2/	0.10			
ا الله المستقدم المستقدم الله المستقدم المستقدم المستقدم المستقدم المستقدم المستقدم المستقدم المستقدم المستقدم المراكب المستقدم المستقدم المستقدم المستقدم المستقدم المستقدم المستقدم المستقدم المستقدم المستقدم المستقدم الم	104. γ-RMC-(lindane)-Gamma 2/ 105. Λ-EMC-Delta 2/	0.1U 0.2U	ļ	- 	
Harach and the second second	106. PCB-1242 (Aroclor 1242)2/ -	2 tj		 ,	·
	107. PCB-1254 (Aroclor 1254)2/	6บ			
	108. PCB-1221 (Aroclor 1221)2/	20		-	
	109. PCB-1232 (Aroclor 1232)2/ 110. PCB-1248 (Aroclor 1248)2/	2U 2U			ļ
	111. PCB-1260 (Aroclor 1260)2/	6 U			
	112. PCB-1016 (Aroclor 1016)2/	6บ		<u> </u>	
	113. Toxaphene 2/	6U	<u></u>	<u> </u>	
	Propactor (Ramrod) Prometon	NA NA			
	2,4-D	NA NA			
	Silvex	NA			•
	2,4,5-T	NA.		,	
	129. 2,3,7,8-Tetrachlorodibenzo- p-dioxin (TCDD) ² /.	NA.	NA NA	NA NA	NA NA
a tanggan dan dina dina dina menganakan kenalah dina dan kenalah dan dina dina dina dina dina dina dina	V WIORIN (1000)			1.0	1,55
Cartini i seri da mara Maritare. Pina					
**************************************		!			<u> </u>
		 	 	 	
and the second s					
الله في الموافق المنظمية الموافق الموافقة المنظمة الموافقة المنظمة المنظمة المنظمة المنظمة المنظمة المنظم المن المنظمة المنظمة المنظمة المنظمة المنظمة المنظمة المنظمة المنظمة المنظمة المنظمة المنظمة المنظمة المنظمة المنظم المنظمة المنظمة المنظمة المنظمة المنظمة المنظمة المنظمة المنظمة المنظمة المنظمة المنظمة المنظمة المنظمة المنظمة		ļ			ļ
The state of the s					
	garanteen de la companya de la companya de la companya de la companya de la companya de la companya de la comp			<u> </u>	
And the second s					
الله المرابعة المرابعة المرابعة المرابعة المرابعة المرابعة المرابعة المرابعة المرابعة المرابعة المرابعة المراب المرابعة المرابعة المرابعة المرابعة المرابعة المرابعة المرابعة المرابعة المرابعة المرابعة المرابعة المرابعة ال		 			1
				-	
				<u> </u>	
		<u> </u>			
			<u> </u>		
		ł	!;		<u> </u>

J - Estimated value.

manageness and a second

K - Actual value is known to be less than value given.

⁻ Actual value is known to be greater than value given.

U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.

1/- Tentative identification.

DATA REPORTING SHEET PESTICIDES/PCB'S, AND OTHER CHLORINATED COMPOUNDS

EPA-SAD-RON. IV Athens, GA 4/80

PROJECT Reichhold Chemical HWS CHEMIST E. W. Loy, Jr. REC'D.2-6-80 COMPL'D. 3-31-80 Gulfport, MS @ 1815 at the state of 80c - 0288RC-1 End of overflow SOURCE & STATION drainage pipe. DATE/TIME 2-6-80 @ 1530 Concentra-Concentra-Concentra-Concentra-COMPOUND tion ug/L tion ug/L tion ug/L tion ug/L aldrin 2/ 39330 0.10 90. dieldrin 2/ 0.20 chlordane (tech. mixture & metabolites) 2/ 39350 4,4'-DDT (p,p'-DDT)2/ 39300 4,4'-DDE (p,p'-DDE)2/ 4,4'-DDD (p,p'-TDE)2/ a-endosulfan-Alpha 2/ 93. 39320 LU 10 94. 39310 95. 10 34361 96. b-endosulfan-Bera 2/ 10 <u>34356</u> endosulfan sulfate 2/ 1.0 97. 34351 endrin 2/ 39390 1U 99. endrin aldehyde 2/ 34366 IN. heptachlor 2/ 100. 39410 0.10 haptachlor epoxide 2/ 39420 0.10 a-BHC-Alpha 2/ b-BHC-Beta 2/ 0.10 102. <u> 39337</u> 39338 0.10 y-ENC-(lindane)-Gamma 104. 39340 0,10 0.10 Δ-BHC-Delta 2/ 105. 34259 PCB-1242 (Aroclor 1242)2/ PCB-1254 (Aroclor 1254)2/ PCB-1221 (Aroclor 1221)2/ 106. 39496 2Ù 107. 39504 7Ü 108. 39488 2U 109. PCE-1232 (Aroclor 1232)2/ 2U 39492 PCB-1248 (Aroclor 1248)2/ PCB-1260 (Aroclor 1260)2/ 110. 39500 2U 111. 39508 7U PCB-1016 (Aroclor 1016)2/ 34671 2Ú Toxaphene 2/ 113. 70 39400 Propaclor (Ramrod) 77729 NA Prometon 39056 NA NA 2,4-D 39730 39760 Silvex NA 39740 NA 2,4,5-r 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) 2/. NA NA NA NA Commence of the second second THE RESIDENCE OF THE PARTY OF T مينجي . معاملون أنشو . د أنو وها ومعا

J - Estimated value.

K - Actual value is known to be less than value given.

L - Actual value is known to be greater than value given.

U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.

WASHING COMES athens, ca 4/80

REC'D. 2-6-80 COMPLET'D-4-23-8 Reichhold Chemical HWS CHEMIST Gulfport, MS SAD NO. 80C 0289 SOURCE & STATION RC - 2 at dump site DATE/TIME 2-6-80 @ 1615 Compound mg/kg mg/kg mg/kg dichlorodifluoromethane2/ 20U 200 methyl chloride2/ methyl bromide2/ 20U vinyl chloride2/ 20U 200 chloroethane2/ 20U methylene chloride2/ trichlorofluoromethane2/ 20U 1.1-dichloroethylene2 20U 1,1-dichloroethane2/ 200 1,2-trans-dichloroethylene2 20U chloroform Z 20U 1,2 / ichloroethane2/ 20U 20U 1,1,1-trichloroethane Z carbon tetrachloride2 20U dichlorobromomethane2 20U 1,2-dichloropropane2/ 20U 1,3-dichloropropylene2 20U trichloroethylene2/ 20U benzene2/ 38 chlorodibromomethane2 20U 1,1,2-trichloroethaneZ/ 20U 2-chloroethyl vinyl ether (mixed) 201 bromoform2/ 2QU 1,1,2,2-tetrachloroethane2 20U tetrachloroethylene2/ 20U toluene2/ 530 chlorobenzene2/ 200 ethylbenzene2/ acrolein2/ 570 400U acrylonitrile2/ 400U: Total Unidentified Hydrocarbons 35,000J

Walter to the second

٠.

J - Estimated value.

^{&#}x27;K - Actual value is known to be less than value given.

L - Actual value is known to be greater than value given.

[·] U - Material was analyzed for but not detected. The number is the Minimum Detection Limit. NA - Not analyzed.

1/- Tentative identification.

2/- On NRDC List of Priority Pollutants.

Branche, Alle ATHENS, GA 4/80

REC'D. 2-6-80 COMPLET'D. 4-23-80 PROJECT Reichhold Chemical HWS CHEMIST E. W. Loy, Jr. Gulfport, MS . . 4-SAD NO. 80C 0288 SOURCE & STATION RC - 1 Drainage Pipe 2-6-80 @ 1530 DATE/TIME Compound ug/L ug/L ug/L dichlorodifluoromethane2/. 50 34668 methyl chloride2/ 34418 5U methyl bromide2/ 34413 vinyl chloride2/ 39175 5U 34311 chloroethane2/ 50 methylene chloride2/ 34423 34488 trichlorofluoromethane2/ 5U 34501 1,1-dichloroethylene∠ 5U 34496 1,1-dichloroethane2/ 511 34546 1,2-trans-dichloroethylene2/ 5U chloroform 2/ 32106 -5ប 32103 1,2-dichloroethane2/ 511 1,1,1-trichloroethane 34506 carbon tetrachloride2 5**U** 32102 dichlorobromomethane2 34328 5U 5.U 1,2-dichloropropane2/ 34541 1,3-dichloropropylene25ช 39704 trichloroethylene2/ 5ับ 39180 benzene2/ 34030 5K chlorodibromomethane2/ 34306 5U 1,1,2-trichloroethane2/ 5U 34511 2-chloroethyl vinyl ether (mixed)2/34576 5*u* bromoform2/ 32104 5บ 1,1,2,2-tetrachloroethane234516 tetrachloroethylene2/ 34475 5บ toluene2/ 34010 SU chlorobenzene2/ 5U 34301 5 บ ethylbenzene2/ 34371 acrolein2 · 34210 1000 acrylonitrile2/ 34215 100ប់ • Total Unidentified Hydrocarbons 600J

water and history with the first the first

terino resper secolos de la sespera de la companya del la companya de la companya

J - Estimated value.

K - Actual value is known to be less than value given.

L - Actual value is known to be greater than value given.

U - Material was analyzed for but not detected. The number is the Minimum Detection Limit NA - Not analyzed.

^{1/-} Tentative identification.

^{2/-} On NRDC List of Priority Pollutants.

DATA REPORTING SHEET WATER

, e. .

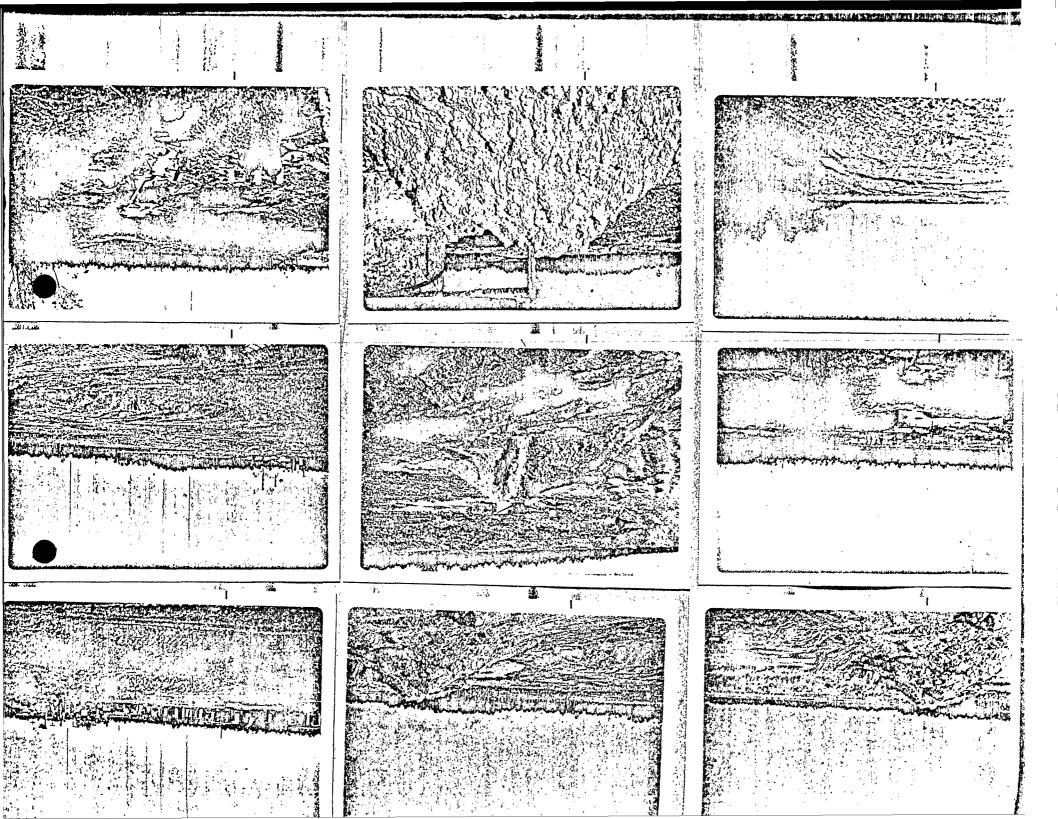
فيتبا وتباري والماري والمارية والمنتب والمنتب والمارية

Dylanda Albania (Albania)

i ingangana melapatan		ort, Ms.	Co. CHEMIST BI		3 .				3/4/8
				-				· · ·	
Totalisa pada sa sa sa sa sa sa sa sa sa sa sa sa sa	SAD NO.	80C	0288	1		-	.1	<u> </u>	
Construction of the Assessment of the Construction of the Construc	SOURCE & STATIC	ON	RC-1	1			₹		
	DATE/TIME		2/6/80 @ 1530	 	<u> </u>				
and the state of t	ELEMENT (ug/1)		2,0,00 6 1000	+					
	Silver	01077	10K	<u> </u>				 	·
	Arsenic	01002	40K		.,				
	Boron	01022			· ·			<u> </u>	
	Barium	01007	88	1:			4-e	ļ	
	Beryllium	01012	10K	<u> </u>				<u> </u>	
	Cadmium	01027	25K						
	Cobalt	01037	10K	<u> </u>		-			
	Chromium	01034	10K				,		
The state of the s	Copper	01042	15			· .			
Annual Commission of the Commi	Molybdenum	01062	*20K	·		-	``		
	Nickel	01067	42			:			
	Lead	01051	25K				T + P - 13 - 144 - 14 - 14 - 14 - 14 - 14 - 1		
	Antimony	01097	·25K			T			
	Selenium	01147	40K	1					
	Tin	01102	50K			***************************************			
	Strontium	01082	132	•				1	
	Tellurium	01064	40K						······································
	•							 	
	Titanium	01152	10K		.,		· · · · · · · · · · · · · · · · · · ·	 	
	Thallium	01059	100K					 	
	Vanadium	01087	10K		•			 	
THE RESERVE OF THE PARTY OF THE	Yttrium	01203	10K	1	5.5.4		 	 	
	Zinc	01092	51 .	· ·	······································				
	Zirconium	01162 .	10K	1			, 	 	
	Mercury	71900	0.2K					 	· · · · · · · · · · · · · · · · · · ·
	ELEMENT (mg/1)		 	-					
The first of the second of the	Silicon								
	Calcium	00916	80				-		·
	Magnesium	00927	11	<u> </u>					
The second control of the second seco	Aluminum		0.4						
	Iron		5.2		•				
A CONTRACTOR OF THE PARTY OF TH	Manganese .		0.2				•		
	Sodium	00929	28	<u> </u>					
4.5. 44.61.51.51.51.54.54.5			to be less than v	alue given.					

PICTURE IDENTIFICATION LEFT TO RIGHT, TOP TO BOTTOM

- 1. East side of landfill note dike and marshland.
- East side of landfill dike area and water to left.
- Looking west over landfill towards plant.
- 4. North end of impoundment, site for sample RC-1.
- 5. Filter cake material, RC-2 sample point.
- 6. Looking west over landfill towards plant.
- 7. South end of landfill.
- 8. Close-up of filter cake material on landfill.
- 9. Exit point, water flowing through pipe at north end of dike.



HAZARD RANKING SYSTEM SCORING SUMMARY

FOR

ARIZONA CHEMICAL CO. (REICHHOLD CHEMICAL)

EPA SITE NUMBER MSD001661719

GULFPORT

HARRISON COUNTY, MS

EPA REGION: 4

SCORE STATUS: IN PREPARATION

SCORED BY CHRIS L. BOWEN OF MSDEQ, OPC ON 11/15/90

DATE OF THIS REPORT: 02/06/91 DATE OF LAST MODIFICATION: 02/06/91

GROUND WATER ROUTE SCORE: 32.97
SURFACE WATER ROUTE SCORE: 16.78
AIR ROUTE SCORE: 0.00

MIGRATION SCORE : 21.38

HRS GROUND WATER ROUTE SCORE

	CATEGORY/FACTOR	RAW DATA	ASN. VALUE	ŠCORE
1.	OBSERVED RELEASE	YEE	45	45
2.	ROUTE CHARACTERISTICS	· · · · · · · · · · · · · · · · · ·	F2	
	DEPTH TO WATER TABLE DEPTH TO BOTTOM OF WASTE	14		
	DEPTH TO AQUIFER OF CONCERN			in the second of
	PRECIPITATION EVAPORATION		A CONTRACTOR OF THE CONTRACTOR	
	NET PRECIPITATION			
	PERMEABILITY			*·
	PHYSICAL STATE			
	TOTAL ROUTE CHARACTERISTICS SO	CORE:		N/A
3.	CONTAINMENT	······································		N/A
4.	WASTE CHARACTERISTICS			1 4
	TOXICITY/PERSISTENCE:BENZENE	: 		12
	WASTE QUANTITY CUBIC YDS TONS	0 0 0 8500		
	TOTAL	8500 CL	V0'S 8	8
	TOTAL WASTE CHARACTERISTICS SO	CORE:	the control of the co	20
5.	TARGETS			€**
	GROUND WATER USE	÷	3	9
	DISTANCE TO NEAREST WELL	6000 FE		
	AND TOTAL POPULATION SERVED NUMBER OF HOUSES NUMBER OF PERSONS	MATRIX VALU315 PE		. 12
	NUMBER OF CONNECTIONS NUMBER OF IRRIGATED ACRES	0		openeda .
	TOTAL TARGETS SCORE:			21

HRS SURFACE WATER ROUTE SCORE

				- Constitution aire		* F	
	CATEGORY/FACTOR	RAW DATA		ASN.	VALUE	. ´ŝ	CORE
i.	OBSERVED RELEASE	YÉS		14.	45		45
2.	ROUTE CHARACTERISTICS	- 1	1			1 thriften	autor or or or or or or or or or or or or o
	SITE LOCATED IN SURFACE WATER SITE WITHIN CLOSED BASIN FACTLITY SLOPE INTERVENING SLOPE						
	24-HOUR RAINFALL		-		•	5 ₄ ,	
	DISTANCE TO DOWN-SLOPE WATER	±	5	- " :		175	
	PHYSICAL STATE		-	•		15 am 1844,1	
	TOTAL ROUTE CHARACTERISTICS SC	ORE:		ej.		ب. د	N/A
D .	CONTAINMENT		57.5	4	3.3	PE-1 2	N/A
4.	WASTE CHARACTERISTICS		-				
	TOXICITY/PERSISTENCE:BENZENE		.ar .	± 2	- right Age.	184 184 1	12
	WASTE QUANTITY CUBIC YDS _ DRUMS GALLONS TONS	0 0 0 8500	i i				
	TOTAL .	85 <u>0</u> 0 CL). YC) 5	.8		8
ren Walana	TOTAL WASTE CHARACTERISTICS SC	ORE:	- 12				20
5.	TARGETS SURFACE WATER USE				2		6
	DISTANCE TO SENSITIVE ENVIRONM COASTAL WETLANDS FRESH-WATER WETLANDS CRITICAL HABITAT	200 FE - NONE NONE	ET				6
	DISTANCE TO STATIC WATER DISTANCE TO WATER SUPPLY INTAK AND TOTAL POPULATION SERVED NUMBER OF HOUSES NUMBER OF PERSONS NUMBER OF CONNECTIONS NUMBER OF IRRIGATED ACRES	5280 FE E > 1 MI MATRIX VALU 0 0 0 0	LE !				

	HRS	5 AIR ROÙTE SCORE	2 4 49 49 49 49 49 49 49 49 49 49 49 49 4
	CATEGORY/FACTOR_	RAW DATA	ASN. VÄLÜE SCORE
1.	OBSERVED RELEASE	= NO	0 0
2.	WASTE CHARACTERISTICS	*: - ;·	
	REACTIVITY:	÷	
	INCOMPATIBILITY		MATRIX VALUE
	TOXICITY		
	WASTE QUANTITY CUBIC YAR EDRUMS GALLONS TONS	RDS	
	TOTAL		
	TOTAL WASTE CHARACTERISTI	CS SCORE:	N/A
3.	TARGETS		
	POPULATION WITHIN 4-MILE 0 to 0.25 mile	RADIUS	\$\frac{1}{5}\$, \$\frac{1}{5}\$.
	0 to 0.50 mile 0 to 1.0 mile 0 to 4.0 miles		The state of the s
	0 to 0.50 mile_ 0 to 1.0 mile	VIRONMENTS	

AIR ROUTE SCORE (Sa) = 0.00

HAZARD RANKING SYSTEM SCORING CALCULATIONS SITE: ARIZONA CHEMICAL CO. (REICHHOLD CHEMICAL) AS QE. 02/06/91

GROUND WATER ROUTE SCORE

OBSERVED RELEASE 45 WASTE CHARACTERISTICS X 20 TARGETS X 21

= 18900 /57,330 X 100 = 32.97

SURFACE WATER ROUTE SCORE TELE

OBSERVED RELEASE WASTE CHARACTERISTICS X 20 _ X 12 TARGETS

= 10800 /64,350 X 100 =

AIR ROUTE SCORE

OBSERVED RELEASE 0 /35,100 X 100 =

SUMMARY OF MIGRATION SCORE CALCULATIONS

			Q	
GROUND WATER ROUTE SCORE (Sew)	· •	32.97	1087.02
SURFACE WATER ROUTE SCORE	(S,w)	*	16.78	281.57°
AIR ROUTE SCORE, (Satis)			0.00	0.00
82 aw + 52 av + 52 air		e process		1368.59
V (52 aw + 52 aw + 52 air)	· · · · · · · · · · · · · · · · · · ·	e de la composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della comp		36.99
Sm = V-(S2aw + S2aw + S2ar	r)/1.7	3		21.38

Instructions: Obtain as much "up front" information as possible prior to conducting fieldwork. Complete the form in as much detail as you can, providing attachments as necessary. Cite the source for all information obtained.

Site Name: Arizona Chemical Company (Reichhold Chemicals)

City, County, State: Gulfport, Harrison County, Mississippi

EPA ID No.: MSD001661719

Person responsible for form: Christopher L. Bowen, Mississippi Office of Pollution

Control (OPC), Jackson, Mississippi

Date: November 19, 1990

Reviewed/edited by Jim Hardage February 4, 1991.

Air Pathway

Describe any potential air emission source onsite: According to the OPC, Air Division Files, there are eleven different permitted emission points at the facility. No additional sources of emissions were identified during the VSI (Reference 7).

Identify any sensitive environments within 4 miles: There is a bald eagle's nest within 2 1/2 miles north of the site. Also, according to U.S. Fish and Wildlife Map #22, the boundary of the designated area for the threatened gopher tortoise is about 4 1/2 miles north of the facility (Reference 15).

Identify the maximally exposed individual (nearest residence or regularly occupied building workers do count): The workers.

Groundwater Pathway

Identify any areas of karst terrain: N/A

Identify additional population due to consideration of wells completed in overlying aquifers to the AOC: There are no aquifers above the AOC. However, an additional population that should be considered withdraws drinking water from wells completed in the underlying "deeper aquifer". This population numbers 99,302 (References 3 and 12).

Do significant targets exist between 3 and 4 miles from the site? Yes. A considerable number of home wells, but no public wells, exist in the AOC between 3 and 4 miles from the site.

There are 10 public wells between 3 and 4 miles from the site, that are screened in the deeper aquifer, and also a considerable number of home wells in the deeper aquifer (Reference 3).

Is the AOC a sole source aquifer according to Safe Drinking Water Act: (i.e. is the site located in Dade, Broward, Volusia, Putnam, or Flager County, Florida)

No.

Surface Water Pathway

Are there intakes located on the extended 15-mile migration pathway? The extended 15-mile migration pathway ends less than 2 miles from the site in Big Lake. There are no permitted surface water intakes along the extended migration pathway (References 2 and 16).

Are there recreational areas, sensitive environments, or human food chain targets (fisheries) along the extended pathway? There are no national wildlife refuges or critical habitats of federally endangered species along the extended pathway. However, the facility is located next to the Industrial Seaway which is used for recreational fishing and water skiing. There is a bald eagle's nest within 2 1/2 miles of the site, but it is not located along the extended surface water migration pathway (References 1, 2, and 15).

Onsite Exposure Pathway

Is there waste or contaminated soil onsite at 2 feet below land surface or higher? Yes. There is contaminated groundwater, some of which is being captured by the groundwater interceptor trench. There is contaminated soil associated with this contaminated groundwater. Also, recent sampling at the UST removal site indicated contaminated soil at 3 feet and 8 feet deep (References 5, 6, and 8).

Is the site accessible to non-employees (workers do not count)?
Yes. Facility is partially fenced, bounded on the south by the Industrial Seaway, and flanked on the west by a densely wooded area. However, the facility is accessible directly from Reichhold Road on the northern border of the facility (References 1 and 2).

Are there residences, schools, or daycare centers onsite or in close proximity? No (References 1 and 2).

Are there barriers to travel (e.g., a river) within one mile? Yes. The Industrial Seaway to the south provides a barrier to travel. Also providing barriers to travel are a series of marshes, bayous, ditches and Big Lake to the east, northeast, and north of the facility (Reference 2).